AERO DESIGN LTD.

2013 - 39 Avenue N.E., Calgary, Alberta, T2E 6R7

Tel: 403-250-8027 Fax: 403-250-8333 www.aerodesign.ca

25 January, 2012

Transport Canada Aircraft Certification Division 9700 Jasper Avenue Edmonton Alberta T5J 4E6

Re: FAA STC Revision for Bell 407 & 206L series Helicopter Cargo Baskets

Attn: Jack Staal TCCA File: SH00-48

Please forward the following documents to the FAA in order to bring the STC up to date:

FAA STC Application Form Modification Approval Request Application Form Transport Canada Supplemental Type Certificate (c FAA Supplemental Type Certificate (copy)	8110.12 MOD698 SH00-48 SR02253NY	Rev. 2 Issue 9 April1, 2011
[407] A (407 Provisions) B (407 Low-Mounted Fixed) C (407 High-Mounted Fixed)	[unchanged from previous issue] [unchanged from previous issue] [unchanged from previous issue]	
D (407 Low-Mounted Q-Release) Document Control List (Installation) Flight Manual Supplement Instructions for Continued Airworthiness Installation Drawing (Q-R Basket) Installation Drawing (Provisions) Service Instructions (Sliding Door Modificati Document Control List (Basket Ass'y) Document Control List (Beams Ass'y)	DCL701 FMS 701.90 ICA 698.90 70101 70102 ion) SI698.91 DCL698-1 DCL698-2	Rev. 3 Rev. 3 Rev. 2 Rev. 3 Rev. 0 Rev. 0 Rev. 2 Rev. 4
E (407 High-Mounted Q-R)	[unchanged from previous issue]	
F (407 Low-Mounted Q-Release - Wide Basket) Document Control List (Installation) Document Control List (Basket Ass'y) Document Control List (Beams Ass'y) Flight Manual Supplement Instructions for Continued Airworthiness Installation Drawing (Q-R Basket) Installation Drawing (Provisions) Assembly Drawing (QR Basket Body) Assembly Drawing (Basket Lid)	DCL945-1 DCL945-10 DCL698-2 FMS 701.90 ICA 698.90 94501 70102 94510 94511	Rev. 0 Rev. 0 Rev. 4 Rev. 3 Rev. 2 Rev. 0 Rev. 0 Rev. 0 Rev. 0

G	(407)	Low-Mounted	Q-Release	- Ski Basket)

Service Instructions (Sliding Door Modification)

Assembly Drawing (Hoop)

Assembly Drawing (Brace)

Assembly Drawing (Placard)

Document Control List (Installation)	DCL946-1	Rev. 0
Document Control List (Basket Ass'y)	DCL946-10	Rev. 0
Document Control List (Beams Ass'y)	DCL698-2	Rev. 4

94520

94621

94627

SI698.91

Rev. 0

Rev. 0

Rev. 0

Rev. 0

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2013 – 39 Avenue N.E., Calgary, Alberta, T2E 6R7

Assembly Drawing (Brace)

Flight Manual Supplement

Assembly Drawing (Placard)

F (206L Low-Mounted Q-Release - Ski Basket)

Installation Drawing (QR Basket)

Installation Drawing (Provisions)

Assembly Drawing (QR Basket)

Assembly Drawing (Basket Body)

Document Control List (Basket Installation)

Document Control List (Basket Ass'y)

Instructions for Continued Airworthiness

Tel: 403-250-8027 Fax: 403-250-8333 www.aerodesign.ca

Flight Manual Supplement Instructions for Continued Airworthiness Installation Drawing (Q-R Basket) Installation Drawing (Provisions) Assembly Drawing (QR Basket) Assembly Drawing (Basket Body) Assembly Drawing (Basket Lid) Assembly Drawing (Hoop) Assembly Drawing (Brace) Assembly Drawing (Placard) Service Instructions (Sliding Door Modificate)	FMS 701.90 ICA 698.90 94601 70102 94610 94611 94612 94620 94621 94627 sion) SI698.91	Rev. 3 Rev. 2 Rev. 0 Rev. 0 Rev. 0 Rev. 0 Rev. 0 Rev. 0 Rev. 0 Rev. 0
[206L, 206L-1, 206L-3, 206L-4 Series] A (206L series Provisions) B (206L series Lo-Mounted Fixed)	[unchanged from previous issue] [unchanged from previous issue]	
C (206L Low-Mounted Q-Release) Document Control List (Installation) Document Control List (Basket Ass'y) Document Control List (Beams Ass'y) Instructions for Continued Airworthiness Flight Manual Supplement Installation Drawing (QR Basket) Installation Drawing (Provisions) Assembly Drawing (QR Basket) Assembly Drawing (Basket Body) Assembly Drawing (Basket Lid)	DCL702 DCL698-1 DCL698-2 ICA 698.90 FMS 702.90 70201 70202 69810 69811 69812	Rev. 3 Rev. 2 Rev. 4 Rev. 2 Rev. 3 Rev. 0 Rev. 3 Rev. 3 Rev. 3
D (206L High-Mounted Q-R)	[unchanged from previous issue]	
E (206L Low-Mounted Q-Release - Wide Basket) Document Control List (Basket Installation) Document Control List (Basket Ass'y) Instructions for Continued Airworthiness Flight Manual Supplement Installation Drawing (QR Basket) Installation Drawing (Provisions) Assembly Drawing (QR Basket) Assembly Drawing (Basket Body) Assembly Drawing (Basket Lid) Assembly Drawing (Hoop)	DCL945-2 DCL945-10 ICA 698.90 FMS 702.90 94502 70202 94510 94511 94512 94520	Rev. 0 Rev. 0 Rev. 2 Rev. 3 Rev. 0 Rev. 0 Rev. 0 Rev. 0 Rev. 0

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DCL946-2

DCL946-10

ICA 698.90

94602

70202

94610

94611

FMS 702.90

Rev. 0

Rev. 0

Rev. 0

Rev. 0

Rev. 2

Rev. 3

Rev. 0

Rev. 0

Rev. 0

Rev. 0

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Assembly Drawing (Basket Lid) Assembly Drawing (Hoop) Assembly Drawing (Brace) Assembly Drawing (Placard)	94612 94620 94621 94627	Rev. 0 Rev. 0 Rev. 0 Rev. 0
(ALL) (Auxiliary Step)		
Document Control List	DCL623	Rev. 3
Installation Drawing	62301	Rev. 1
(ALL) (Basket Modifications) Document Control List Assembly Drawing (Open Front End) Assembly Drawing (Lid Door) Assembly Drawing (Aux Latch) Assembly Drawing (Open Front End) Assembly Drawing (Lid Step) Assembly Drawing (Hangar Wheel) Assembly Drawing (Open Front End) Assembly Drawing (Open Front End) Assembly Drawing (Gas Spring)	DCL704 70401 70402 70403 70404 70405 70408 70411 70412	Rev. 7 Rev. 0 Rev. 0 Rev. 0 Rev. 0 Rev. 0 Rev. 0 Rev. 0
(ALL) (Quick Pologge Stop)	[unchanged from provious issue]	
(ALL) (Quick Release Step)	[unchanged from previous issue]	

(ALL) Substantiation

Engineering Report (Basket Tests - Weight Increase)	ER 698.06	Rev. 0
Engineering Report (Handle Tests)	ER 842.01	Rev. 0
Engineering Report (Wide Basket Tests)	ER 945.01	Rev. 0
Engineering Report (Ski Basket Tests)	ER 946.01	Rev. 0
Engineering Report (Flight Test Results)	FTR 945.03	Rev. 1

Every attempt has been made to provide a package of data that is as complete as possible, sorted in a fashion that resembles the multiple configurations that are found on the STC. In addition, copies of the documents have been sorted by type in separate folders, if it will help comparing similar documents.

The data has been copied onto 3 (three) separate CD-ROM disks. Please keep one copy for your files, and forward the other two to the FAA.

If you require more information, or must pass on any inquiry from the FAA, please inform Aero Design Ltd. as soon as possible. You may reach us either at the phone numbers above, or at the following e-mail addresses:

ted@aerodesign.ca (DAR 290M) steve@aerodesign.ca

(engineering technologist)

We will do our best to reply to any concern with as little delay as possible.

Regards,

E. Burgoin, DAR 290M

Enclosure

No certificate may be issued unles a completed a	ation
form has been received (14 C.F.R. 21)	

	DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION	50.514 A BBBOVED	
	APPLICATION FOR TYPE CERTIFICATE, PRODU OR SUPPLEMENTAL TYPE CERTI	FORM APPROVED O.M.B. No. 04-R0078	
1.	Name and address of applicant Aero Design Ltd. 2013 - 39th Avenue NE Calgary, Alberta, T2E 6R7 Canada	2. Application made for - Type Certificate Production Certificate Supplemental Type Certificate	3. Product involved Aircraft Engine Propeller
4.	TYPE CERTIFICATE (Complete item 4a below)		
	Model designation(s) (All models listed are to be completely described in representing the design, material, specifications, construction, and perform which is the subject of this application.)		
	PRODUCTION CERTIFICATE (Complete items 5a-c below. Submit of quality control data or changes thereto covering new products, as requ		у
	Factory address (If different from 1 above)	b. Application is for - New Production Certificate Additions to Production Certificate (Give P.C. No.)	P.C. No.
	Applicant is holder of or a licensee under a Type Certificate or a Supplem (Attach evidence of licensing agreement and give ertificate number)	nental Type Certificate	T.C./S.T.C. No.
6.	SUPPLEMENTAL TYPE CERTIFICATE (Complete items 6a-d below	w)	
	Make and model designation of product to be modified Bell Helicopter (Textron) Model 206L series, 407 Type certificate Data Sheet: H-92 (FAA TCDS: H2SW)		,
	Description of modification Revision to FAA STC SR02253NY, Installation of External Cargo Basket, This revision adds new cargo basket configurations, and increases capac	•	e SH00-48 for configurations.
C.	Will data be available for sale or release to other persons?	d. Will parts be manufactured for sale	? (Ref. FAR 21.303)
	☐ YES ☐ NO		
	CERTIFICATION - I certify that the above statements are true.		
Sigr -	nature of certifying official FOR DAR 290		Date 25 January, 2012

	MODIFICATION APPROV	AL RE	EQUEST AP	PLICAT	ION F	ORM	MOD6	98, Rev. 1	
1.	- 7 E								
	AERO Design Ltd. 2013 - 39th Avenue NE Calgary, Alberta, Canada T2E 6R7	MAKE: Bell Helicopter (Textron)				MODEL: 206L series, 407			
	ALL CORRESPONDANCE TO: SERIAL No.:					EGISTRATIO	N:		
	AERO Design Ltd. 2013 - 39th Avenue NE Calgary, Alberta All eligible					All eligible			
3.	T2E 6R7 REQUEST FOR:								
١.	A. SUPPLEMENTAL TYPE CERTIFICATE (STC)								
	B. STC/STA REVISION		STC/STA No.						
	C. LIMITED SUPPLEMENTAL TYPE CERTIFICATE (LSTC)								
	D. LIMITED STC/STA REVISION		LSTC/LSTA No.						
	E. F.A.A. SUPPLEMENTAL TYPE CERTIFICATE								
	F. F.A.A. STC REVISION	\boxtimes	STC No. SR022	53NY					
	G. FAMILIARIZATION OF F.A.A. STC		STC No.						
	H. REPAIR DESIGN APPROVAL (RDC)								
	I. PARTS DESIGN APPROVAL (PDA)								
4.	TITLE OF MODIFICATION OR REPAIR: Quick Release Cargo Basket Installation								
5.	BRIEF DESCRIPTION OF MODIFICATION OR REPAIR:								
	This revision adds new cargo basket configurations, and increase	es capacit	ry of some existing	cargo bask	ets. See	SH00-48 for co	onfiguration	s.	
6.	APPLICABLE TYPE APPROVAL (TA) OR TYPE CERTIFICATE	(TC) DO	CUMENTS:						
	A. TA NO. H-92 B. TC No. H2SW	С	. OTHER						
7.	PROPOSED BASIS OF APPROVAL:								
	A. SAME AS TA 🛛 B. SAME AS TC 🗌	С	OTHER	(Please s	specify)	and the same of th			
8.				REQU	JIRED	FOR	DOT USE	ONLY	
	DOCUMENTATION CHECKLIST						RECEIVED)	
						EWEST TOTAL PRINTED BY THE STREET			
				YES	NO	YES	NO	DATE	
	COMPLIANCE PROGRAM			х	NO	YES	NO	DATE	
	COMPLIANCE PROGRAM MASTER DRAWING LIST				NO	YES	NO	DATE	
				х	NO	YES (NO	DATE	
	MASTER DRAWING LIST			X	NO X	YES	NO	DATE	
	MASTER DRAWING LIST FLIGHT MANUAL SUPPLEMENT			X		YES	NO	DATE	
	MASTER DRAWING LIST FLIGHT MANUAL SUPPLEMENT MAINTENANCE MANUAL SUPPLEMENT			X X X		YES	NO	DATE	
	MASTER DRAWING LIST FLIGHT MANUAL SUPPLEMENT MAINTENANCE MANUAL SUPPLEMENT INSTRUCTIONS FOR CONTINUING AIRWORTHINESS			X X X		YES	NO	DATE	
	MASTER DRAWING LIST FLIGHT MANUAL SUPPLEMENT MAINTENANCE MANUAL SUPPLEMENT INSTRUCTIONS FOR CONTINUING AIRWORTHINESS ENGINEERING REPORTS	S		X X X	X	YES	NO	DATE	
	MASTER DRAWING LIST FLIGHT MANUAL SUPPLEMENT MAINTENANCE MANUAL SUPPLEMENT INSTRUCTIONS FOR CONTINUING AIRWORTHINESS ENGINEERING REPORTS DESIGN DRAWINGS	S		X X X	X	YES	NO	DATE	
	MASTER DRAWING LIST FLIGHT MANUAL SUPPLEMENT MAINTENANCE MANUAL SUPPLEMENT INSTRUCTIONS FOR CONTINUING AIRWORTHINESS ENGINEERING REPORTS DESIGN DRAWINGS MANUFACTURE DRAWINGS & INSTALLATION INSTRUCTION	S		X X X	X	YES	NO	DATE	
	MASTER DRAWING LIST FLIGHT MANUAL SUPPLEMENT MAINTENANCE MANUAL SUPPLEMENT INSTRUCTIONS FOR CONTINUING AIRWORTHINESS ENGINEERING REPORTS DESIGN DRAWINGS MANUFACTURE DRAWINGS & INSTALLATION INSTRUCTION ELECTRICAL LOAD ANALYSIS	S		X X X	X	YES	NO	DATE	
	MASTER DRAWING LIST FLIGHT MANUAL SUPPLEMENT MAINTENANCE MANUAL SUPPLEMENT INSTRUCTIONS FOR CONTINUING AIRWORTHINESS ENGINEERING REPORTS DESIGN DRAWINGS MANUFACTURE DRAWINGS & INSTALLATION INSTRUCTION ELECTRICAL LOAD ANALYSIS DRAFT STC, LSTC OR RDA	IS .		x x x x	X	YES	NO	DATE	
	MASTER DRAWING LIST FLIGHT MANUAL SUPPLEMENT MAINTENANCE MANUAL SUPPLEMENT INSTRUCTIONS FOR CONTINUING AIRWORTHINESS ENGINEERING REPORTS DESIGN DRAWINGS MANUFACTURE DRAWINGS & INSTALLATION INSTRUCTION ELECTRICAL LOAD ANALYSIS DRAFT STC, LSTC OR RDA WEIGHT AND MOMENT CHANGE	S		x x x x	X	YES	NO	DATE	
9.	MASTER DRAWING LIST FLIGHT MANUAL SUPPLEMENT MAINTENANCE MANUAL SUPPLEMENT INSTRUCTIONS FOR CONTINUING AIRWORTHINESS ENGINEERING REPORTS DESIGN DRAWINGS MANUFACTURE DRAWINGS & INSTALLATION INSTRUCTION ELECTRICAL LOAD ANALYSIS DRAFT STC, LSTC OR RDA WEIGHT AND MOMENT CHANGE FLIGHT TEST DATA	S		x x x x	X X X	YES	NO	DATE	
	MASTER DRAWING LIST FLIGHT MANUAL SUPPLEMENT MAINTENANCE MANUAL SUPPLEMENT INSTRUCTIONS FOR CONTINUING AIRWORTHINESS ENGINEERING REPORTS DESIGN DRAWINGS MANUFACTURE DRAWINGS & INSTALLATION INSTRUCTION ELECTRICAL LOAD ANALYSIS DRAFT STC, LSTC OR RDA WEIGHT AND MOMENT CHANGE FLIGHT TEST DATA OTHER (Specify) APPLICANT'S REMARKS: STC based on Transport Canada STC # SH00-48 issue 9 In addition to the payment of Aircraft Certification approval fees as prescrib incremental expenses as in Aviation Regulation Directive No. 3, or equivalent	ped in Can	adian Aviation Regula	X X X X X X X	X X X X Section 104	4. I agree to reim	burse Transc		
	MASTER DRAWING LIST FLIGHT MANUAL SUPPLEMENT MAINTENANCE MANUAL SUPPLEMENT INSTRUCTIONS FOR CONTINUING AIRWORTHINESS ENGINEERING REPORTS DESIGN DRAWINGS MANUFACTURE DRAWINGS & INSTALLATION INSTRUCTION ELECTRICAL LOAD ANALYSIS DRAFT STC, LSTC OR RDA WEIGHT AND MOMENT CHANGE FLIGHT TEST DATA OTHER (Specify) APPLICANT'S REMARKS: STC based on Transport Canada STC # SH00-48 issue 9 In addition to the payment of Aircraft Certification approval fees as prescrib incremental expenses as in Aviation Regulation Directive No. 3, or equivalent	ped in Cana ent, as app	adian Aviation Regula blicable. For further d	X X X X X X X	X X X X Section 104	4. I agree to reim	burse Transc	port Canada	
	MASTER DRAWING LIST FLIGHT MANUAL SUPPLEMENT MAINTENANCE MANUAL SUPPLEMENT INSTRUCTIONS FOR CONTINUING AIRWORTHINESS ENGINEERING REPORTS DESIGN DRAWINGS MANUFACTURE DRAWINGS & INSTALLATION INSTRUCTION ELECTRICAL LOAD ANALYSIS DRAFT STC, LSTC OR RDA WEIGHT AND MOMENT CHANGE FLIGHT TEST DATA OTHER (Specify) APPLICANT'S REMARKS: STC based on Transport Canada STC # SH00-48 issue 9 In addition to the payment of Aircraft Certification approval fees as prescrib incremental expenses as in Aviation Regulation Directive No. 3, or equivalent	ped in Cana ent, as app	olicable. For further d	X X X X X X X	X X X X Section 104	4. I agree to reim	burse Transp MA 513/4.	port Canada	
	MASTER DRAWING LIST FLIGHT MANUAL SUPPLEMENT MAINTENANCE MANUAL SUPPLEMENT INSTRUCTIONS FOR CONTINUING AIRWORTHINESS ENGINEERING REPORTS DESIGN DRAWINGS MANUFACTURE DRAWINGS & INSTALLATION INSTRUCTION ELECTRICAL LOAD ANALYSIS DRAFT STC, LSTC OR RDA WEIGHT AND MOMENT CHANGE FLIGHT TEST DATA OTHER (Specify) APPLICANT'S REMARKS: STC based on Transport Canada STC # SH00-48 issue 9 In addition to the payment of Aircraft Certification approval fees as prescrib incremental expenses as in Aviation Regulation Directive No. 3, or equivalent AERO Design Ltd. PER SAMAGOIN	ped in Cana ent, as app Cons	olicable. For further d	X X X X X X X	X X X X Section 104	4. I agree to reim	burse Transp MA 513/4.	port Canada	

Bell Cargo Basket Configuration Matrix

Application submitted 26 January, 2012

TCCA TCDS H-92	FA	AA SR02253NY Issue *	R	Required Documentation	on	Modification Basis of
(FAA H2SW) Rotorcraft	Ва	asket Configuration	Installation * Document	Flight Manual * Supplement	Instr. For Continued Airworthiness **	Certification
	Α	Provisions	DCL 700, Rev. 1	FMS 700.91, Rev. 0	ICA 700.90, Rev. 0	As per TCDS
	В	Low-Mount Fixed	DCL 606, Rev. 3	FMS 606.01, Rev. 2	ICA 492.90, Rev. 1	As per TCDS
Bell	С	High-Mount Fixed	DCL 606-1, Rev. 1	FMS 606.01, Rev. 1	MI 606.01, Rev. 2	As per TCDS
Helicopter (Textron)	D	Low-Mount Quick- Release	DCL 701, Rev. 4	FMS 701.90, Rev. 3 (error on STC date)	ICA 698.90, Rev. 2	As per TCDS
407	Е	High-Mount Quick- Release	DCL 766-1, Rev. 1 (error on STC rev)	FMS 766.91, Rev. 0	ICA 766.90, Rev. 0	As per TCDS
	F	Low-Mount - Wide Quick-Release	DCL 945-1, Rev. 0	FMS 701.90, Rev. 3	ICA 698.90, Rev. 2	As per TCDS
	G	Low-Mount - SKI Quick-Release	DCL 946-1, Rev. 0	FMS 701.90, Rev. 3	ICA 698.90, Rev. 2	As per TCDS
	Α	Provisions	DCL 493, Rev. 6	FMS 493.01, Rev. 0	ICA 493.90, Rev. 0	FAR 27 Amdt. 27-24
Bell Helicopter	В	Low-Mount Fixed	DCL 492, Rev. 6	FMS 492.01, Rev. 2	ICA 492.90, Rev. 1	FAR 27 Amdt. 27-24
(Textron)	С	Low-Mount Quick- Release	DCL 702, Rev. 3	FMS 702.90, Rev. 3	ICA 698.90, Rev. 2	FAR 27 Amdt. 27-30
206L, 206L-1,	*** D	High-Mount Quick- Release	DCL 766-1, Rev. 1	FMS 766.92, Rev. 0	ICA 766.90, Rev. 0	FAR 27 Amdt. 27-30
206L-3, 206L-4	Е	Low-Mount - Wide Quick-Release	DCL 945-2, Rev. 0	FMS 702.90, Rev. 3	ICA 698.90, Rev. 2	FAR 27 Amdt. 27-30
200L-4	F	Low-Mount - SKI Quick-Release	DCL 946-2, Rev. 0	FMS 702.90, Rev. 3	ICA 698.90, Rev. 2	FAR 27 Amdt. 27-30
		Pilot Step	DCL 623, Rev. 4	n/a	ICA 623.91, Rev. 1	FAR 27 Amdt. 27-30
ALL	E	Basket Modifications	DCL 704, Rev. 6	n/a	n/a	FAR 27 Amdt. 27-30
(407 & 206L)	(Quick-Release Step	DCL 800-2, Rev. 0	n/a	ICA 800.90, Rev. 2	FAR 27 Amdt. 27-30

^{*} or later Transport Canada approved revision.

(documents changed from previous issue are noted in blue)

^{**} or later Transport Canada accepted revision.

^{***} approved emergency push-out windows or an approved sliding door are required on the side of the helicopter that as basket is installed if passengers are to be carried.

Bell Cargo Basket Configuration Matrix

As of Issue 9, November 30, 2011

TCCA TCDS H-92		STC SH00-48 Issue 9	i	Modification Basis of		
(FAA H2SW) Rotorcraft	Ва	asket Configuration	Installation * Document	Flight Manual * Supplement	Instr. For Continued Airworthiness **	Certification
	Α	Provisions	DCL 700, Rev. 1	FMS 700.91, Rev. 0	ICA 700.90, Rev. 0	As per TCDS
	В	Low-Mount Fixed	DCL 606, Rev. 3	FMS 606.01, Rev. 2	ICA 492.90, Rev. 1	As per TCDS
Bell	С	High-Mount Fixed	DCL 606-1, Rev. 1	FMS 606.01, Rev. 1	MI 606.01, Rev. 2	As per TCDS
Helicopter (Textron)	D	Low-Mount Quick- Release	DCL 701, Rev. 4	FMS 701.90, Rev. 3	ICA 698.90, Rev. 2	As per TCDS
407	E	High-Mount Quick- Release	DCL 766-1, Rev. 0 (error on STC)	FMS 766.91, Rev. 0	ICA 766.90, Rev. 0	As per TCDS
	F	Low-Mount - Wide Quick-Release	DCL 945-1, Rev. 0	FMS 701.90, Rev. 3	ICA 698.90, Rev. 2	As per TCDS
	G	Low-Mount - SKI Quick-Release	DCL 946-1, Rev. 0	FMS 701.90, Rev. 3	ICA 698.90, Rev. 2	As per TCDS
	Α	Provisions	DCL 493, Rev. 6	FMS 493.01, Rev. 0	ICA 493.90, Rev. 0	FAR 27 Amdt. 27-24
Bell Helicopter	В	Low-Mount Fixed	DCL 492, Rev. 6	FMS 492.01, Rev. 2	ICA 492.90, Rev. 1	FAR 27 Amdt. 27-24
(Textron)	С	Low-Mount Quick- Release	DCL 702, Rev. 3	FMS 702.90, Rev. 3	ICA 698.90, Rev. 2	FAR 27 Amdt. 27-30
206L, 206L-1,	*** D	High-Mount Quick- Release	DCL 766-1, Rev. 1	FMS 766.92, Rev. 0	ICA 766.90, Rev. 0	FAR 27 Amdt. 27-30
206L-1, 206L-3, 206L-4	E	Low-Mount - Wide Quick-Release	DCL 945-2, Rev. 0	FMS 702.90, Rev. 3	ICA 698.90, Rev. 2	FAR 27 Amdt. 27-30
200L-4	F	Low-Mount - SKI Quick-Release	DCL 946-2, Rev. 0	FMS 702.90, Rev. 3	ICA 698.90, Rev. 2	FAR 27 Amdt. 27-30
A1.1		Pilot Step	DCL 623, Rev. 4	n/a	ICA 623.91, Rev. 1	FAR 27 Amdt. 27-30
ALL (407 & 206L)	Е	Basket Modifications	DCL 704, Rev. 6	n/a	n/a	FAR 27 Amdt. 27-30
(407 & 200L)	(Quick-Release Step	DCL 800-2, Rev. 0	n/a	ICA 800.90, Rev. 2	FAR 27 Amdt. 27-30

^{*} or later Transport Canada approved revision.

(documents changed from previous issue are noted in blue)

^{**} or later Transport Canada accepted revision.

^{***} approved emergency push-out windows or an approved sliding door are required on the side of the helicopter that as basket is installed if passengers are to be carried.

(Continuation Sheet)

Number: SH00-48 Issue 9

NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

Bell 407 only:

Configuration	Installation	Operation	Maintenance
A-External	DCL700 Rev 1,	FMS700.91 Rev 0,	ICA700.90 Rev 0,
Attachment	22 September	4 May 2006*	20 April 2006 **
Provisions (may	2007*		
remain installed if	×		
basket removed)			
B- Low Mounted	DCL606 Rev 3,	FMS606.01 Rev 2,	ICA492.90 Rev 1,
Fixed (High Skid	28 September	28 September	28 September
Gear)	2007*	2007*	2007**
C-High Mounted	DCL606-1,	FMS606.01 Rev 1,	MI606.01 Rev 2,
Fixed***	Revision 1, 13	1 February 2005*	19 July 2004**
	December 2006		
D -Low Mounted	DCL701 Rev 4,	FMS701.90 Rev 3,	ICA698.90 Rev 2,
Quick Release (High	27 October 2011*	26 October 2007*	25 October 2011**
Skid Gear) Model 698		7 2011	
E-High Mounted	DCL766-1 Rev 0,	FMS766.91 Rev 0,	ICA766.90 Rev 0,
Quick Release***	26 September	30 October 2007*	26 September
	2007*		2007**
F-Low Mounted Quick	DCL945-1 Rev 0,	FMS701.90 Rev 3,	ICA698.90 Rev 2,
Release (High Skid	27 October 2011*	26 October 2011*	25 October 2011**
Gear) Model 945		' V	
G-Low Mounted	DCL946-1 Rey 0,	FMS701.90 Rev 3,	ICA698.90 Rev 2,
Quick Release (High	27 October 2011*	26 October 2011*	25 October 2011**
Skid Gear) Model 946	V		

^{*}or later approved revision

^{**} or later accepted revision

^{***} approved emergency push out windows or an approved sliding door are required on the side of the helicopter that a basket is installed on if passengers are to be carried.

(Continuation Sheet)

Number: SH00-48 Issue 9

NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

Bell 206L, L-1, L-3, L-4 only:

Configuration	Installation	Operation	Maintenance
A-Attachment	DCL493 Rev 6, 10	FMS493.01 Rev 0,	ICA493.90 Rev 0, 4
Provisions (may	May 2006*	19 May 2002*	May 2006**
remain installed if			
basket removed)			
B- Low Mounted	DCL492 Rev 6, 28	FMS492.01 Rev 2,	ICA492.90 Rev 1,
Fixed (High Skid	September 2007*	28 September 2007*	28 September
Gear)			2007**
C- Low Mounted	DCL702 Rev 3, 27	FMS702.90 Rev 3,	ICA698.90 Rev 2,
Quick Release	October 2011*	26 October 2011*	25 October 2011**
(High Skid Gear)	1		
Model 698	4		·
D -High Mounted	DCL766-1 Rev 1,	FMS766.92 Rev 0,	ICA766.90 Rev 0,
Quick Release ***	23 September 2008*	30 October 2007*	26 September
			2007**
E-Low Mounted	DCL945-2 Rev 0,	FMS702.90 Rev 3,	ICA698.90 Rev 2,
Quick Release	27 October 2011*	26 October 2011*	25 October 2011**
(High Skid Gear)			
Model 945			
F-Low Mounted	DCL946-2 Rev 0,	FMS702.90 Rev 3,	ICA698.90 Rev 2,
Quick Release	27 October 2011*	26 October 2011*	25 October 2011**
(High Skid Gear)		\ and the second	
Model 946		Y	

^{***} approved emergency push out windows or an approved sliding door are required on the side of the helicopter that a basket is installed on if passengers are to be carried.



MINISTERIAL DELEGATE STATEMENT OF COMPLIANCE WITH THE CERTIFICATION BASIS

DÉLÉGUÉ MINISTÉRIEL CONSTAT DE CONFORMITÉ **AVEC LA BASE DE CERTIFICATION**

<u></u>				
1. Reference No. / N° de référence		2. Applicant Name / Nom de demandeur		
NAPA File C-11-0786 Aero Design Project 698		Aero Design Ltd.		
	•			
Part 1: Identification of Aeronautical Production 1: Identification des produits aérona				
Applicable Design Approval Document No. / H-92	N° du document d'approbation de la concept	tion applicable		
4. Model No. / N° de modèle 206L, 206L-1, 206L-3, 206L-4	, 407	5. Make / Marque Bell Helicopter Textron Canad	5. Make / Marque Bell Helicopter Textron Canada Ltd.	
6. Type (aircraft, engine, propeller, appliance, Helicopter	part) / Type (aéronef, moteur hélice, appareill	lage, pièce)		
Part 2: Substantiating Reports and Data Partie 2: Rapports et des données pertinen	ites			
7. Number / Numéro DCL701 Revision 4	8. Title / Titre Document Control Lis	st, and all documents referenced	therein.	
DCL702, Revision 3	Document Control Lis	st, and all documents referenced	therein.	
9. Purpose of Finding of Compliance / But de la New approval: Supplemental Type (Supplemental Type (Repair Design Certifi Other: Findings of compliance to revice pacity.	Certificate Certificate-Limited	Yes The revised data approval docume Yes The revised data	is within the scope of the	
10. Applicable Elements of Certification Basis / Éléments applicables de la base de certification Certification Plan: CP945, Rev. 0 Letter of exention of delegation, dated:				
Part 3: Ministerial Delegate Finding of Com Partie 3 : Délégué ministériel constat de co				
Under the authority vested in me by the I Aeronautics Act, I hereby find that the typ is in compliance with the certification bas substantiating reports and data to the be	pe design of the aeronautical product sis as demonstrated by the applicant's	En vertu des pouvoirs qui m'ont été con paragraphe 4.3(1) de la <i>Loi sur l'Aérona</i> connaissance, la définition de type du p base de certification tel qu'il a été démo pertinentes fournis par le demandeur.	autique, j'estime que, à ma roduit aéronautique est conforme à sa	
11. Signature of Delegate(s) Signature des délègués	12. Name / Nom	13. Delegate No. / N° de délégué	14. Date (yyyy-mm-dd) Date (aaaa-mm-jj)	
IL Zi	E. Burgoin, Aero Design Ltd.	DAR 290M	2011-11-22	

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Transport Transports Canada Canada

MINISTERIAL DELEGATE STATEMENT OF COMPLIANCE WITH THE CERTIFICATION BASIS

DÉLÉGUÉ MINISTÉRIEL CONSTAT DE CONFORMITÉ AVEC LA BASE DE CERTIFICATION

Block 7 (continued from she	•		
Document Number	Revision	Title	Comment
DCL701	4	Document Control List – Bell 407 Installation	
70101	4	Quick Release Cargo Basket Installation	
70102	0	Quick Release Mounting Provisions Installation	
SI698.91	0	Service Instructions – Sliding Door Modification	
DCL702-1	3	Document Control List – Bell 206L Installation	
70201	4	Quick Release Cargo Basket Installation	
70202	0	Quick Release Mounting Provisions Installation	
DCL698-1	2	Document Control List - Cargo Basket Fabrication	
69810	3	Cargo Basket Assembly	
69811	3	Basket Body Assembly	
69812	3	Basket Lid Assembly	
69821	0	Basket Components - End Hoop	
69822	0	Basket Components – Aft Hoop	
69823	1	Basket Components – Lugs	
69827	2	Basket Components – Placard	
49210	0	Basket Components – Hoop	
49215	0	Basket Components - Spacer	
49216	0	Basket Components - Spacer	
84255	1	Handle Assembly	
84261	.1	Handle Bar Assembly	
84262	1	Handle Bracket Assembly	
84265	1	Handle Lever	
84267	0	Handle Bracket	
84272	1	Bushing	
36273	1	Lid Bracket	
36274	2	Bushing	
36275	3	Bushing	
36277	0	Handle Bar	
36278	1	Spring	
36280	2	Brace	
ER698.01	0	Engineering Report	
ER698.06	0	Engineering Report	

DCL698-2	4	Document Control List – Beams Fabrication
69830	3	Forward Beam Fabrication
69831	3	Aft Beam Fabrication
ER698.02	0	Engineering Report
TP698.03	0	Test Report
ER698.04	0	Engineering Report
ER698.06	0	Engineering Report

Documents listed below this line (if any) cannot be approved by the delegate:

FMS701.90	3	Flight Manual Supplement (Bell 407)
FMS702.90	3	Flight Manual Supplement (Bell 206L Series)
ICA698.90	2	Instructions for Continued Airworthiness



DOCUMENT NO.	DOCU	MENT CONTENT	REVISION
FABRICATION DOCUMENTS			
69831 69831	Forward Beam Fabr Aft Beam Fabricatio		3 7
ENGINEERING DOCUMENTS ER698.02 TP698.03 ER698.04 ER698.06	Engineering Report Test Plan Engineering Report Engineering Report		0 - 0
APPROVAL:	ORIGINAL DATE: 3 May, 2006 REVISION DATE: 27 October, 2011	AERO DESIGN 2013 – 39 th Ave NE, Calgary, Al Ph. (403) 250-802 Fax. (403) 250-833	berta, T2E 6R7 7
	SHEET 1 OF 1	Quick Release Mount	ing Beams
	DC	L698-2	4

DOCUMENT CONTROL LIST

DOCUMENT NO.	DOCU	MENT CONTENT	REVISION
FABRICATION DOCUMENTS			
69810 69811 69812 69821 69822 69823 69827	Cargo Basket Assem Basket Body Asseml Basket Lid Assembly Basket Components Basket Components Basket Components Basket Components	bly / - End Hoop - Aft Hoop - Lugs	3 3 7 1 1 1 2 7
49210 49215 49216	Basket Components Basket Components Basket Components	- Spacer	1 - 0 - 0
84255 84261 84262 84265 84267 84272 36273 36274 36275 36277 36278 36280	Handle Assembly Handle Bar Assembl Handle Bracket Asse Handle Lever Handle Bracket Bushing Lid Bracket Bushing Bushing Handle Bar Spring Brace		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
ENGINEERING DOCUMENTS			
ER698.01 ER698.06	Engineering Report Engineering Report		0 -
APPROVAL:	ORIGINAL DATE: 3 May, 2006 REVISION DATE: 27 October, 2011	AERO DESIGN 2013 – 39 th Ave NE, Calgary, Al Ph. (403) 250-802 Fax. (403) 250-833	berta, T2E 6R7 7
	SHEET 1 OF 1	Quick Release Cargo Basket Assembly	
	DC	L698-1	2

AERO Design Ltd.

ENGINEERING REPORT ER698.05

BELL 206L SERIES, 407

QUICK RELEASE BEAMS LIGHT WALL MATERIAL

NOT USED

Prepared by: Jeff Clarke, CET

Approved by: E. Burgoin, P.Eng., DAR 290M

Revision 0, 26 January 2011

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TABLE OF CONTENTS

1.0	INTRODUCTION	3
2.0	REFERENCE TEXT	3
3.0	BASIS OF CERTIFICATION	3
4.0	APPLICABILITY OF AIRWORTHINESS DIRECTIVES	3
5.0	LOADS	4
5.1	Inertia Loads	5
5.2	Drag Load	6
6.0	STRUCTURAL COMPLIANCE - JULY 2009	7
6.1	Limit Load – 200 lbs Cargo	7
6.2	Limit Load – 225 lbs Cargo	8
6.3	Ultimate Load – 200 lbs Cargo	10
6.4	Ultimate Load – 225 lbs Cargo	10
7.0	STRUCTURAL COMPLIANCE - JANUARY 2011	12
7.1	Limit Load – 200 lbs Cargo	12
7.2	Limit Load – 225 lbs Cargo	13
7.3	Ultimate Load – 200 lbs Cargo	16
7.4	Ultimate Load – 225 lbs Cargo	Error! Bookmark not defined.

1.0 INTRODUCTION

This report is to document the next generation of quick release mounting beams. It has been determined through testing of a similar configuration that a lighter wall tube may be sufficient to carry ultimate loads without failure. Overall construction of the beams remains the same.

The basket attachments are changed to use horizontal slots on the aft beam to allow for some variation in the longitudinal spacing of the beams. The configuration is identical to the Eurocopter AS350 configuration.

2.0 REFERENCE TEXT

AERO Design Ltd. Reports ER698.01 ER698.02, TP698.03, ER698.04 AERO Design Ltd. Drawings 69832 and 69833

3.0 BASIS OF CERTIFICATION

TCDS H-92 (Highest of Bell 206L series and 407):

FAR part 27, dated October 2, 1964 Amendment 27-1 through 27-30; Paragraph 27.561(b)(3) at Amdt 27-24; Section 27.563 at Amdt. 27-25; Section 27.785 at Amdt 27-24; Section 27.1093 at amendment 27-8; and Section 27.173 and 27.175 at amendment 27-1.

Exemptions to FAR 27 are the deletion of sections: 27.562, 27.1195, and 27.952(b)(1).

This report demonstrates that the installation of the Light Wall Quick Release Beams complies with the original basis of certification.

4.0 APPLICABILITY OF AIRWORTHINESS DIRECTIVES

Airworthiness Directives applicable to the Bell 206L Series and 407 were reviewed, and none were found to affect this project.

5.0 **LOADS**

BELL 407 HELICOPTER LOAD FACTORS, FAR 27:

FAR 27.561(b)(3)

Ultimate Upward Emergency Landing Load Factor:

 $n_{e_up} = 1.5$

Ultimate Forward Emergency Landing Load Factor:

 $n_{e \text{ fwd}} := 4.0$

Ultimate Sideward Emergency Landing Load Factor:

 $n_{e \text{ side}} = 2.0$

Ultimate Downward Emergency Landing Load Factor: $n_{e\ down} := 4.0$

FAR 27.625

Fitting Factor (does not apply to articles being tested): $n_{\text{ff}} = 1.15$

FAR 27.303

Safety Factor:

 $n_{sf} := 1.5$

FAR 27.337(a)

Limit Positive Maneuvering LoadFactor:

 $n_{man} := 3.5$

 $n_{man ult} = n_{man} \cdot n_{sf}$

Ultimate Positive Maneuvering LoadFactor:

 $n_{man ult} = 5.25$

Limit Negative Maneuvering LoadFactor:

 $n_{man} = -1.0$

 $n_{man_neg_u} = n_{man_n} \cdot n_{sf}$ Ultimate Negative Maneuvering LoadFactor:

 $n_{\text{man neg u}} = -1.5$

CRITICAL ULTIMATE LOAD FACTORS:

Downward:

Ultimate Positive Maneuvering LoadFactor:

 $n_{man ult} = 5.25$

Forward:

Ultimate Forward Emergency Landing Load Factor:

 $n_{e \text{ fwd}} = 4.00$

Sideward:

Ultimate Sideward Emergency Landing Load Factor:

 $n_{e \text{ side}} = 2.00$

Upward:

Ultimate Upward Emergency Landing Load Factor:

 $n_{e up} = 1.50$

The basket is mounted below and to one side of the cabin. Forward deflection or failure in the emergency landing condition does not endanger the occupants. Likewise, Sideward and Upward deflection or failure of the basket in the emergency landing condition do not endanger the occupants.

Sideward and Upward Load Factors are used in the tests to ensure that the lid of the basket does not open in flight.

5.1 Inertia Loads

The positive maneuvering load is the only critical condition.

$$W_{basket} := 45 \cdot lbf$$

Weight of basket

$$W_{cargo} := 200 \, lbf$$

Weight of cargo (max)

$$W_{beam} := 6 \cdot lbf$$

Weight of beam (each)

$$P_{\text{man_lim}} := (W_{\text{basket}} + W_{\text{cargo}}) \cdot n_{\text{man_lim}}$$

$$P_{man lim} = 858lbf$$

Limit maneuvering load due to cargo and basket

$$P_{man_ult} := P_{man_lim} \cdot n_{sf}$$

$$P_{man\ ult} = 1286lbf$$

Ultimate maneuvering load due to cargo and basket

The basket will also be tested to see if the load capacity can be increased.

$$W_{cargo} := 225 \cdot lbf$$

Weight of cargo (max)

$$P_{man_lim} := (W_{basket} + W_{cargo}) \cdot n_{man_lim}$$

$$P_{\text{man lim}} = 9451bf$$

Limit maneuvering load due to cargo and basket

$$P_{man ult} := P_{man lim} \cdot n_{sf}$$

$$P_{man\ ult} = 1418lbf$$

Ultimate maneuvering load due to cargo and basket

$$W_{cargo} := 250 \, lbf$$

Weight of cargo (max)

$$P_{man_lim} := (W_{basket} + W_{cargo}) \cdot n_{man_lim}$$

$$P_{man\ lim} = 1033lbf$$

Limit maneuvering load due to cargo and basket

$$P_{man ult} := P_{man lim} \cdot n_{sf}$$

$$P_{man\ ult} = 1549lbf$$

Ultimate maneuvering load due to cargo and basket

5.2 Drag Load

$$l_{basket} := 75.75 in$$

Length of basket.

$$w_{basket} := 22 \cdot in$$

Width of basket.

Height of basket.

$$A_f := w_{basket} \cdot h_{basket}$$

$$A_f = 352in^2$$

Frontal Area of basket.

$$A_p := l_{basket} \cdot w_{basket}$$

$$A_p = 1666in^2$$

Planar Area of basket.

$$\frac{l_{basket}}{w_{basket}} = 3.4$$

Fineness ratio of basket

 $C_{Do} := 1.1$

Drag Coefficient of Basket, (overestimated) (Ref. Hoerner, Fluid Dynamic Drag, Figure 22).

$$\rho := 0.002378 \frac{\text{slug}}{\text{ft}^3}$$

Density of air at Sea Level.

 $V_{ne} := 140 \, knots$

Never-Exceed-Speed of Bell 407. (Ref. Bell 407 Flight Manual.)

$$V_d := \frac{V_{ne}}{0.9}$$

$$V_d = 156$$
knots

Design Dive Speed of Bell 407

$$P_{drag_lim} := \frac{\rho}{2} \cdot V_d^2 \cdot A_f C_{Do}$$

$$P_{drag\ lim} = 220lbf$$

Limit Drag load on basket.

$$P_{drag_ult} := P_{drag_lim} \cdot n_{sf}$$

$$P_{drag\ ult} = 331lbf$$

Ultimate Drag load on basket.

6.0 STRUCTURAL COMPLIANCE – JULY 2009

Structural compliance is demonstrated by test. The entire cargo basket configuration is tested. A jig simulating the helicopter attachments was fabricated. A pair of quick release beams was fabricated in accordance with drawing 69832 and 69833. The beams were mounted on the jig, and a basket body fabricated in accordance with drawing 69811 was installed on the beams.

The maneuvering load is applied by stacking bags of lead shot (25 lbs each) evenly over the bottom of the basket. The drag load is applied by pulling on a piece of plywood spanning the front face of the basket with a come-along attached to a load cell.

6.1 Limit Load – 200 lbs Cargo

The lead shot required to apply the downward maneuvering load can be reduced by the weight of the basket body since it applies 1g down. The basket weighs 30 lbs.

 $P_{man lim} = 858lbf$

Limit maneuvering load due to cargo and basket

 $P_{man lim test} := P_{man lim} - 30 \cdot lbf$

 $P_{man\ lim\ test} = 828lbf$

Limit load for test

The basket was loaded with 34 bags of lead shot (850 lbs total), and pulled 340 lbs.

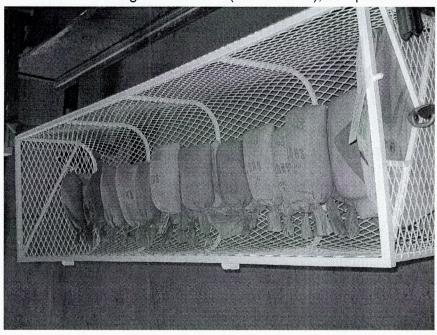


Figure 6.1.1 – Limit Maneuvering Load – 200 lbs Cargo

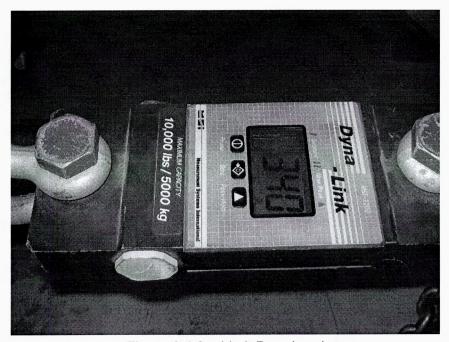


Figure 6.1.2 – Limit Drag Load

The loads were applied for more than 3 seconds. The loads were removed and the basket and beams checked for permanent deformation. There was no deformation found.

6.2 Limit Load – 225 lbs Cargo

The lead shot required to apply the downward maneuvering load can be reduced by the weight of the basket body since it applies 1g down. The basket weighs 30 lbs.

 $P_{man\ lim} = 945lbf$

Limit maneuvering load due to cargo and basket

 $P_{man_lim_test} := P_{man_lim} - 30 \cdot lbf$

 $P_{man\ lim\ test} = 915lbf$

Limit load for test

The basket was loaded with 37 bags of lead shot (925 lbs), and pulled 340 lbs.

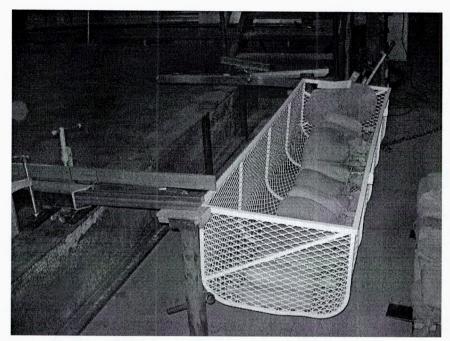


Figure 6.2.1 - Limit Maneuvering Load, 225 lbs Cargo

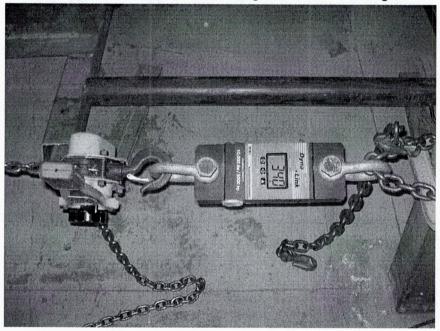


Figure 6.2.2 - Limit Drag Load

The loads were applied for more than 3 seconds. The loads were removed and the basket and beams checked for permanent deformation. There was none found.

6.3 Ultimate Load – 200 lbs Cargo

The lead shot required to apply the downward maneuvering load can be reduced by the weight of the basket body since it applies 1g down. The basket weighs 30 lbs.

$$P_{man ult} = 1286lbf$$

Ultimate maneuvering load due to cargo and basket

$$P_{man_ult_test} := P_{man_ult} - 30 \cdot lbf$$

$$P_{man\ ult\ test} = 1256lbf$$

Ultimate load for test

The basket was loaded with 51 bags of lead shot (1275 lbs), and pulled 490 lbs.

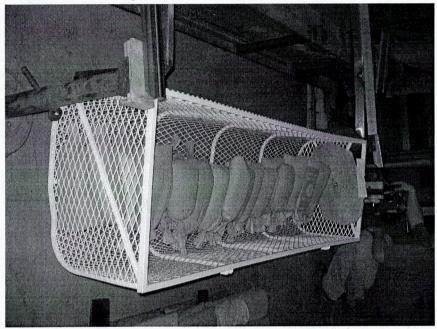


Figure 6.3.1 – Ultimate Maneuvering Load, 200 lbs Cargo

The batteries in the load cell died before a picture could be taken of the drag load.

The basket and beams sustained the ultimate maneuvering and drag loads for more than 3 seconds without failure. The light wall beams are acceptable for use with a basket rated at 200 lbs of cargo.

6.4 Ultimate Load – 225 lbs Cargo

The lead shot required to apply the downward maneuvering load can be reduced by the weight of the basket body since it applies 1g down. The basket weighs 30 lbs.

$$P_{man\ ult} = 1418lbf$$

Ultimate maneuvering load due to cargo and basket

$$P_{man_ult_test} := P_{man_ult} - 30 \cdot lbf$$

$$P_{man_ult_test} = 1388lbf$$

Ultimate load for test

The total load required is 56 bags of lead shot (1400 lbs). Loading continued from the previous condition (51 bags, 490 lbs drag). The beams carried 54 bags for more than 3 seconds, but failed after the 55th bag was placed in the basket.

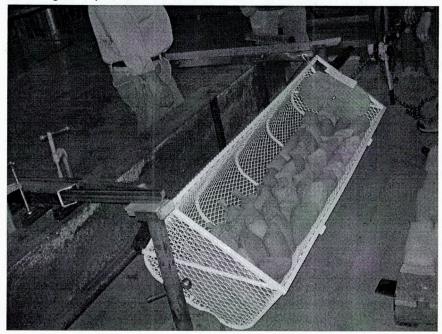


Figure 6.4.1 – Maneuvering Load After Failure of Beams

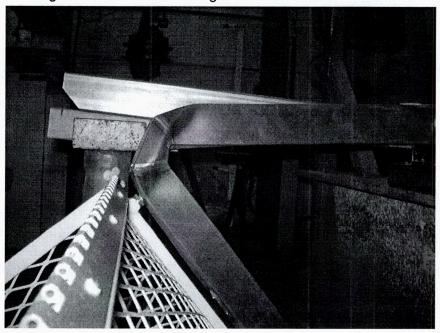


Figure 6.4.2 – Aft Beam After Failure

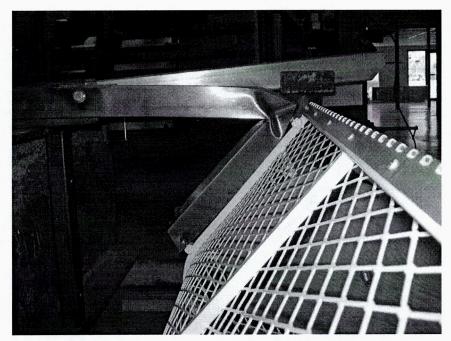


Figure 6.4.3 - Forward Beam After Failure

Since the beams failed before reaching ultimate load, the basket cannot be rated to carry 225 lbs cargo.

7.0 STRUCTURAL COMPLIANCE - JANUARY 2011

Following the testing in section 6.0, there were no beams produced in accordance with drawings 69832 and 69833. Inspection of the failed beams indicates that the failure occurred due to the drag load causing the sides of the beams to buckle out of plane at the corner which then caused the beam to fail due to the down load.

The beams have been redesigned to resist buckling from the drag load as follows:

- using heavy wall tube on the 45° corner of the aft beam
- welding a web at the corner on the forward beam

Structural compliance is demonstrated by test. The entire cargo basket configuration is tested. A jig simulating the helicopter attachments was fabricated. A pair of quick release beams was fabricated in accordance with updated drawings 69832 and 69833. The beams were mounted on the jig, and a basket body fabricated using stainless steel (see ER926.01) in accordance with drawing 69811 was installed on the beams.

The maneuvering load is applied by stacking bags of lead shot (25 lbs each) evenly over the bottom of the basket. The drag load is applied by pulling on a piece of plywood spanning the front face of the basket with a come-along attached to a load cell.

7.1 Limit Load – 200 lbs Cargo

The lead shot required to apply the downward maneuvering load can be reduced by the weight of the basket body since it applies 1g down. The basket weighs 33 lbs.

$$P_{lim\ man} = 858 lbs - 33 lbs$$

$$P_{lim\ man} = 825 lbs$$

Limit maneuvering load to be applied in test

 P_{drag_lim} = 220 lbs Limit drag load
The basket was loaded with 825 lbs (33 bags of lead shot), and pulled 230 lbs.

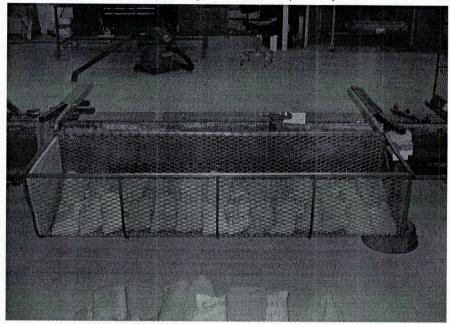


Figure 7.1.1 – Limit Maneuvering Load (200 lbs Cargo)

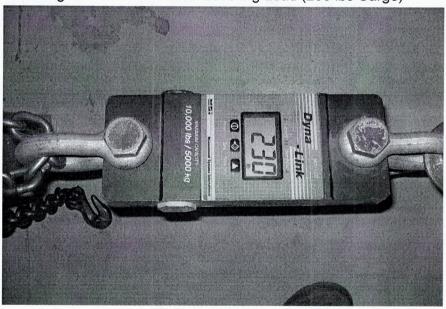


Figure 7.1.2 - Limit Drag Load

The loads were applied for greater than three seconds. The loads were removed and the beams were checked for permanent deformation. There was none found.

7.2 Limit Load – 225 lbs Cargo

The lead shot required to apply the downward maneuvering load can be reduced by the weight of the basket body since it applies 1g down. The basket weighs 33 lbs.

 $P_{lim\ man} = 945 lbs - 33 lbs$

P_{lim man} = 912 lbs

Limit maneuvering load to be applied in test

P_{drag lim} = 220 lbs

Limit drag load

The basket was loaded with 925 lbs (37 bags of lead shot), and pulled 230 lbs.



Figure 7.2.1 – Limit Maneuvering Load (225 lbs Cargo)



Figure 7.2.2 - Limit Drag Load

The loads were applied for greater than three seconds. The loads were removed and the beams were checked for permanent deformation. There was none found.

7.3 Limit Load – 250 lbs Cargo

The lead shot required to apply the downward maneuvering load can be reduced by the weight of the basket body since it applies 1g down. The basket weighs 33 lbs.

 $P_{lim_man} = 1033 lbs - 33 lbs$

 $P_{lim\ man} = 1000 lbs$

Limit maneuvering load to be applied in test

 $P_{drag_lim} = 220 lbs$

Limit drag load

The basket was loaded with 1000 lbs (40 bags of lead shot), and pulled 230 lbs.



Figure 7.3.1 – Limit Maneuvering Load (250 lbs Cargo)

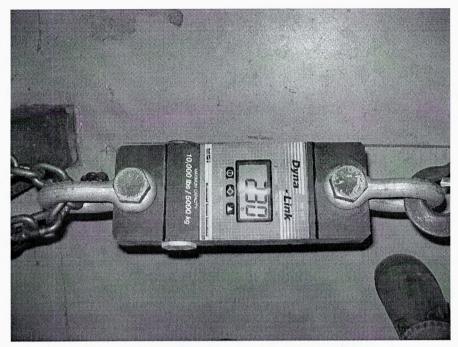


Figure 7.3.2 - Limit Drag Load

The loads were applied for greater than three seconds. The loads were removed and the beams were checked for permanent deformation. There was none found.

7.4 Ultimate Load – 200 lbs Cargo

The lead shot required to apply the downward maneuvering load can be reduced by the weight of the basket body since it applies 1g down. The basket weighs 33 lbs.

 $P_{lim_man} = 1286 lbs - 33 lbs$

 $P_{lim\ man} = 1253 lbs$

Ultimate maneuvering load to be applied in test

 $P_{drag lim} = 331 lbs$

Ultimate drag load

The basket was loaded with 1275 lbs (51 bags of lead shot), and pulled 340 lbs.

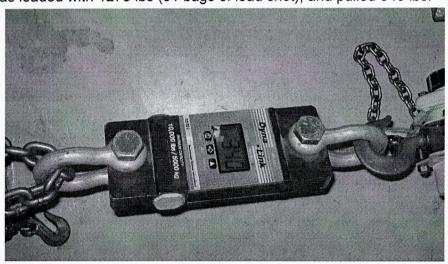


Figure 7.4.1 – Ultimate Drag Load



Figure 7.4.2 – Ultimate Maneuvering Load (200 lbs Cargo)

The basket and beams carried the ultimate load for more than three seconds. The beams were inspected for failure while under load. There was no failure found. Testing continued to ultimate load for 225 lbs cargo.

7.5 Ultimate Load – 225 lbs Cargo

The lead shot required to apply the downward maneuvering load can be reduced by the weight of the basket body since it applies 1g down. The basket weighs 33 lbs.

 $P_{lim man} = 1418 lbs - 33 lbs$

 $P_{lim_man} = 1385 lbs$

Ultimate maneuvering load to be applied in test

 $P_{drag_lim} = 331 lbs$

Ultimate drag load

The basket was loaded with 1400 lbs (56 bags of lead shot), and pulled 340 lbs.



Figure 7.5.1 – Ultimate Maneuvering Load (200 lbs Cargo)

The basket and beams carried the ultimate load for more than three seconds. The beams were inspected for failure while under load. There was no failure found. Testing continued to ultimate load for 250 lbs cargo.

7.6 Ultimate Load – 250 lbs Cargo

The lead shot required to apply the downward maneuvering load can be reduced by the weight of the basket body since it applies 1g down. The basket weighs 33 lbs.

 $P_{lim man} = 1549 lbs - 33 lbs$

 $P_{lim\ man} = 1516 lbs$

Ultimate maneuvering load to be applied in test

 $P_{drag lim} = 331 lbs$

Ultimate drag load

The basket was loaded with 1525 lbs (61 bags of lead shot), and pulled 340 lbs.



Figure 6.1.7 – Ultimate Maneuvering Load (250 lbs Cargo)

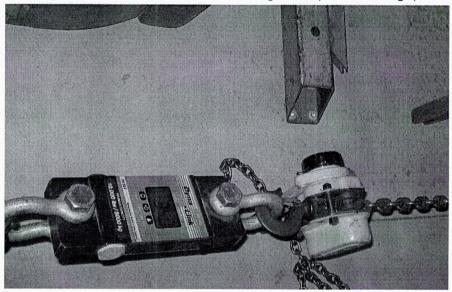


Figure 6.1.8 – Ultimate Drag Load

The basket and beams carried the ultimate load for more than three seconds. The beams were inspected for failure while under load. There was no failure found. The load was removed and the beams were inspected for permanent deformation and failure. The aft beam has the most permanent deformation, it is deflected about 1/8" in the fore/aft direction and about 3/8" down. The sides at the corners did not buckle as they did in the last test. There was no failure found.

The Bell 206L/407 light wall beams are acceptable for installation with an increased cargo load of 250 lbs.

AERO Design Ltd.

ENGINEERING REPORT ER698.06

BELL 206L SERIES, 407

QUICK RELEASE CARGO BASKET LOAD INCREASE TO 300 LBS

Prepared by: Jeff Clarke, CET

Approved by: E. Burgoin, P.Eng., DAR 290M

Revision 0, 14 October 2011

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TABLE OF CONTENTS

1.0	INTRODUCTION	3
2.0	REFERENCE TEXT	3
3.0	BASIS OF CERTIFICATION	3
4.0	APPLICABILITY OF AIRWORTHINESS DIRECTIVES	3
5.0	LOADS	4
5.1	Inertia Loads	5
5.2	Drag Load	5
6.0	STRUCTURAL COMPLIANCE	6
6.1	Limit Load – 275 lbs Cargo	6
6.2	Limit Load – 300 lbs Cargo	8
6.3	Ultimate Load – 275 lbs Cargo	9
6.4	Ultimate Load – 300 lbs Cargo	9
6.5	Forward Emergency Landing Condition	11
6.6	Sideward Emergency Landing Condition	11
6.7	Upward Emergency Landing Condition	11

1.0 INTRODUCTION

In order to remain competitive the load capacity of the Quick Release Cargo Basket must be increased.

Previous testing of beams fabricated from light wall material (0.065" wall, ER698.05) demonstrated the beams are capability of supporting a 250 lb cargo load at ultimate load conditions. This configuration was not pursued and was not added to the approval.

This report demonstrates that the original configuration of beams and cargo basket are capable of supporting a 275 or 300 lb cargo load at ultimate load conditions.

2.0 REFERENCE TEXT

AERO Design Ltd. Reports ER698.01 ER698.02, TP698.03, ER698.04, ER698.05, ER842.01 AERO Design Ltd. Drawings 69830, 69831, 69811

3.0 BASIS OF CERTIFICATION

TCDS H-92 (Highest of Bell 206L series and 407):

FAR part 27, dated October 2, 1964 Amendment 27-1 through 27-30; Paragraph 27.561(b)(3) at Amdt 27-24; Section 27.563 at Amdt. 27-25; Section 27.785 at Amdt 27-24; Section 27.1093 at amendment 27-8; and Section 27.173 and 27.175 at amendment 27-1.

Exemptions to FAR 27 are the deletion of sections: 27.562, 27.1195, and 27.952(b)(1).

This report demonstrates that the installation of the Light Wall Quick Release Beams complies with the original basis of certification.

4.0 APPLICABILITY OF AIRWORTHINESS DIRECTIVES

Airworthiness Directives applicable to the Bell 206L Series and 407 were reviewed, and none were found to affect this project.

AERO Design Ltd.

ER698.06

5.0 LOADS

BELL 407 HELICOPTER LOAD FACTORS, FAR 27:

FAR 27.561(b)(3)

Ultimate Upward Emergency Landing Load Factor: $n_{eup} = 1.5$

Ultimate Forward Emergency Landing Load Factor: $n_{e-fwd} = 4.0$

Ultimate Sideward Emergency Landing Load Factor: $n_{e-side} = 2.0$

Ultimate Downward Emergency Landing Load Factor: $n_{e\ down} = 4.0$

FAR 27.625 Fitting Factor (does not apply to articles being tested): $n_{\text{ff}} = 1.15$

FAR 27.303 Safety Factor: $n_{sf} = 1.5$

FAR 27.337(a)

Limit Positive Maneuvering LoadFactor: $n_{man} = 3.5$

 $n_{man~ult} = n_{man} \cdot n_{sf}$ Ultimate Positive Maneuvering LoadFactor: $n_{man~ult} = 5.25$

Limit Negative Maneuvering LoadFactor: $n_{man n} = -1.0$

 $n_{man neg u} = n_{man n} \cdot n_{sf}$ Ultimate Negative Maneuvering LoadFactor: $n_{man neg u} = -1.5$

CRITICAL ULTIMATE LOAD FACTORS:

Downward: Ultimate Positive Maneuvering LoadFactor: $n_{man ult} = 5.25$

Forward: Ultimate Forward Emergency Landing Load Factor: $n_{e \text{ fwd}} = 4.00$

Sideward: Ultimate Sideward Emergency Landing Load Factor: $n_{e \ side} = 2.00$

Upward: Ultimate Upward Emergency Landing Load Factor: n_{e} un = 1.50

Note: The basket is mounted below and to one side of the cabin. Forward deflection or failure in the emergency landing condition does not endanger the occupants. Likewise, Sideward and Upward deflection or failure of the basket in the emergency landing condition do not endanger the occupants.

Sideward and Upward Load Factors are used in the tests to ensure that the lid of the basket does not open in flight.

5.1 **Inertia Loads**

The positive maneuvering load is the only critical condition.

$$W_{basket} := 55 \cdot lbf$$

Weight of basket (including options, basic basket is less)

$$W_{cargo} := 275 \cdot lbf$$

Weight of cargo (max)

$$P_{\text{man_lim}} := (W_{\text{basket}} + W_{\text{cargo}}) \cdot n_{\text{man_lim}}$$

$$P_{man\ lim} = 1155lbf$$

Limit maneuvering load due to cargo and basket

$$P_{man ult} := P_{man lim} \cdot n_{sf}$$

$$P_{man\ ult} = 1733lbf$$

Ultimate maneuvering load due to cargo and basket

$$W_{cargo} := 300 \, lbf$$

Weight of cargo (max)

$$P_{\text{man_lim}} := (W_{\text{basket}} + W_{\text{cargo}}) \cdot n_{\text{man_lim}}$$

$$P_{man\ lim} = 1243lbf$$

Limit maneuvering load due to cargo and basket

$$P_{man ult} := P_{man lim} \cdot n_{sf}$$

$$P_{\text{man ult}} = 1864lbf$$

Ultimate maneuvering load due to cargo and basket

5.2 **Drag Load**

$$l_{basket} := 75.75 in$$

Length of basket.

$$w_{basket} := 25.5 in$$

Width of basket.

$$h_{basket} := 18.25 in$$

Height of basket.

$$A_f := 450 \text{ in}^2$$

Frontal Area of basket.

$$\frac{l_{basket}}{h_{basket}} = 4.2$$

Fineness ratio of basket

Drag Coefficient of Basket, (overestimated)

 $C_{Do} := 1.1$

(Ref. Hoerner, Fluid Dynamic Drag,

Chapter 3, Figure 22).

$$\rho := 0.002378 \frac{\text{slug}}{\text{ft}^3}$$

Density of air at Sea Level.

$$V_{ne} := 140 \, knots$$

Never-Exceed-Speed of Bell 407. (Ref. Bell 407 Flight Manual.)

$$V_d \coloneqq \frac{V_{ne}}{0.9}$$

$$V_d = 156 knots$$

Design Dive Speed of Bell 407

$$P_{drag_lim} := \frac{\rho}{2} \cdot V_d^2 \cdot A_f C_{Do}$$

$$P_{drag\ lim} = 282lbf$$

Limit Drag load on basket.

$$P_{drag\ ult} := P_{drag\ lim} \cdot n_{sf}$$

$$P_{drag_ult} = 4231bf$$

Ultimate Drag load on basket.

6.0 STRUCTURAL COMPLIANCE

Structural compliance is demonstrated by test. The entire cargo basket configuration is tested. A jig simulating the helicopter attachments was fabricated. A pair of quick release beams was fabricated in accordance with drawing 69830 and 69831. The beams were mounted on the jig, and a basket body fabricated in accordance with drawing 69811 was installed on the beams.

The maneuvering load is applied by stacking bags of lead shot (25 lbs each) evenly over the bottom of the basket. The drag load is applied by pulling on a piece of plywood spanning the aft face of the basket with a come-along attached to a load cell.

6.1 Limit Load – 275 lbs Cargo

The lead shot required to apply the downward maneuvering load can be reduced by the weight of the basket body since it applies 1g down. The basket body weighs 25 lbs.

$$P_{man\ lim} = 1155lbf$$

Limit maneuvering load due to cargo and basket

$$P_{man\ lim\ test} = 1130lbf$$

Limit load for test

The basket was loaded with 46 bags of lead shot (1150 lbs total), and pulled 330 lbs.

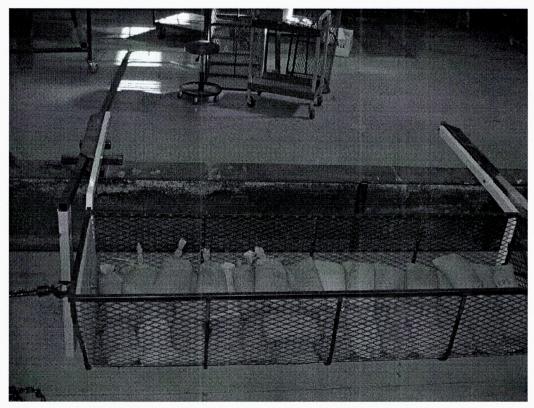


Figure 6.1.1 – Limit Maneuvering Load – 250 lbs Cargo

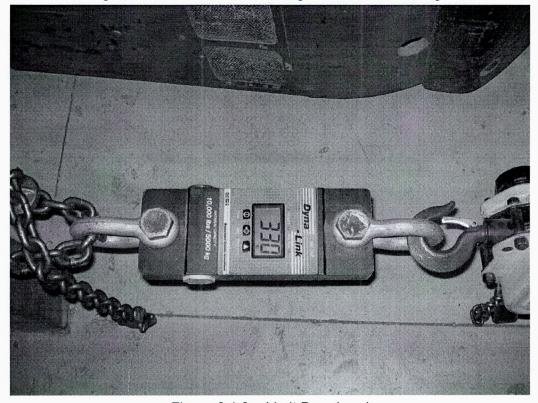


Figure 6.1.2 - Limit Drag Load

The loads were applied for more than 3 seconds. The loads were removed and the basket and beams checked for permanent deformation. There was no deformation found.

6.2 Limit Load – 300 lbs Cargo

The lead shot required to apply the downward maneuvering load can be reduced by the weight of the basket body since it applies 1g down. The basket body weighs 25 lbs.

 $P_{man\ lim} = 1243lbf$

Limit maneuvering load due to cargo and basket

 $P_{man_lim_test} \coloneqq P_{man_lim} - 25 \cdot lbf$

 $P_{man_lim_test} = 1218lbf$

Limit load for test

The basket was loaded with 49 bags of lead shot (1225 lbs), and pulled 310 lbs.

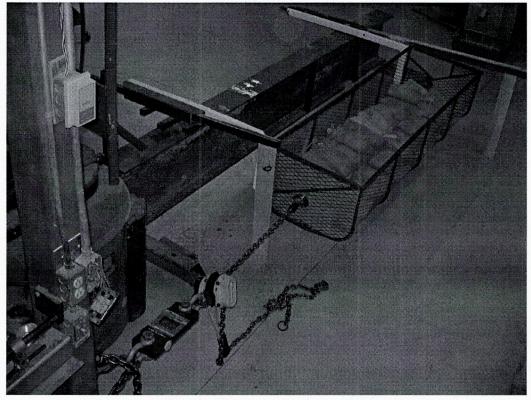


Figure 6.2.1 – Limit Maneuvering Load, 300 lbs Cargo

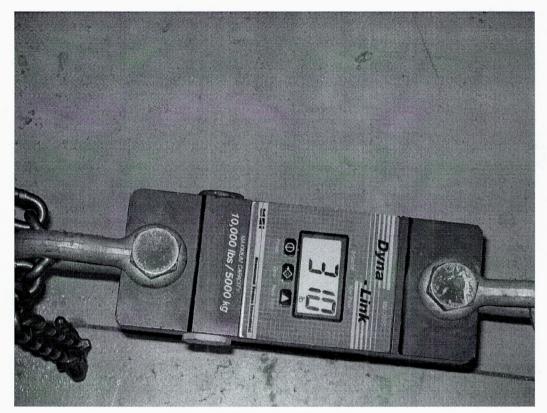


Figure 6.2.2 - Limit Drag Load

The loads were applied for more than 3 seconds. The loads were removed and the basket and beams checked for permanent deformation. There was none found.

6.3 Ultimate Load – 275 lbs Cargo

The lead shot required to apply the downward maneuvering load can be reduced by the weight of the basket body since it applies 1g down. The basket body weighs 25 lbs.

$$P_{man\ ult} = 1733lbf$$

Ultimate maneuvering load due to cargo and basket

$$P_{man\ ult\ test} := P_{man\ ult} - 25 \cdot lbf$$

$$P_{man\ ult\ test} = 1708lbf$$

Ultimate load for test

The basket was loaded with 69 bags of lead shot (1725 lbs), and pulled 450 lbs.

The basket and beams sustained the ultimate maneuvering and drag loads for more than 3 seconds without failure. Testing continued to ultimate load with 300 lbs cargo.

6.4 Ultimate Load – 300 lbs Cargo

The lead shot required to apply the downward maneuvering load can be reduced by the weight of the basket body since it applies 1g down. The basket body weighs 25 lbs.

 $P_{man_ult} = 1864lbf$

Ultimate maneuvering load due to cargo and basket

 $P_{man_ult_test} \coloneqq P_{man_ult} - 25 \cdot lbf$

 $P_{man_ult_test} = 1839lbf$

Ultimate load for test

The total load required is 74 bags of lead shot (1850 lbs). Loading continued from the previous condition (69 bags, 450 lbs drag).

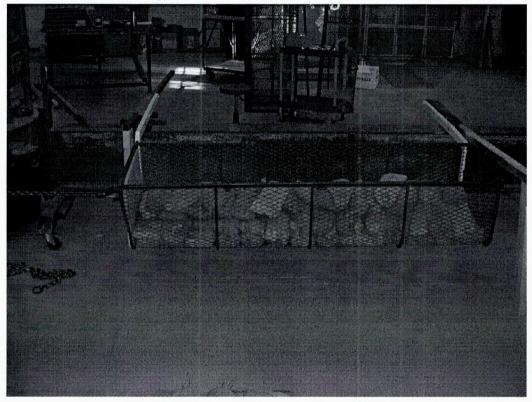


Figure 6.4.1 – Ultimate Maneuvering Load, 300 lbs Cargo

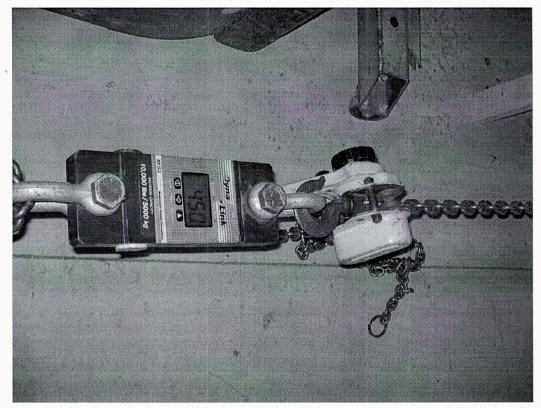


Figure 6.4.2 – Ultimate Drag Load

The basket and beams sustained the ultimate maneuvering and drag loads for more than 3 seconds without failure. The basket and beams were inspected after removal of the loads. The basket showed no signs of permanent deformation. Both beams were slightly deformed, the aft beam was worst, bent down about 1/8" at the outboard end.

The quick release cargo basket and beams are acceptable for a cargo load of 300 lbs.

6.5 Forward Emergency Landing Condition

The basket is located below the cabin. Forward deflection of the basket does not endanger the occupants in a crash.

6.6 Sideward Emergency Landing Condition

Sideward deflection of the basket does not endanger the occupants. The basket lid must remain closed in the sideward loading condition. The handle has been demonstrated to remain closed under 2g sideward load, reference Engineering Report ER842.01.

6.7 Upward Emergency Landing Condition

Upward deflection of the basket does not endanger the occupants. The basket lid must remain closed in the upward loading condition. The handle system has been demonstrated to remain closed under 450 lbs upward load (1.5g x 300 lbs), reference Engineering Report ER842.01.



Department of Transport

Supplemental Type Certificate

This approval is issued to:

Number: SH00-48

Aero Design Ltd.

Issue No.:

2013 39th Avenue North East

Approval Date: December 08, 2000

Calgary, Alberta

Issue Date:

Canada T2E 6R7

November 22, 2010

Responsible Office:

Prairie and Northern

Aircraft/Engine Type or Model:

BELL 206L, 206L-1, 206L-3, 206L-4, 407

Canadian Type Certificate or Equivalent:

BELL 206L,206L-1,206L-3,206L-4,407 H-92

Description of Type Design Change:

Installation of Cargo Basket / External Attachment

Provisions/Auxiliary step./Quick Release Step

Installation/Operating Data, Required Equipment and Limitations:

Bell 407 only:

407 Configuration A - External Attachment Provisions Only:

Installation of the External Attachment Provisions is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 700, Revision 1, dated 28 September 2007, or later approved revision.

AERO Design Ltd., Instructions for Continued Airworthiness ICA 700.90, Revision 0, dated 20 April 2006, or later accepted revision, is required with this installation.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS700.91, Revision 0, dated 4 May 2006, or later approved revision, is required with this installation.

External Attachment Provisions installed in accordance with DCL700 may remain installed if the basket installation is removed.

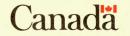
Basis of Certification remains as defined in the applicable Type Certificate Data Sheets.

(continued on page 2)



Conditions: This approval is only applicable to the type/model of aeronautical product specified therein. Prior to incorporating this modification, the installer shall establish that the interrelationship between this change and any other modification(s) incorporated will not adversely affect the airworthiness of the modified product.

> D.S. Austen For Minister of Transport



DESIGN APPROVAL DOCUMENT TRANSFER

Transfer of this design approval document requires the prior approval of the Minister and the reissue of this document in the name of the transferee.

The reissue of this design approval document in the name of the transferee will be contingent on the holder and the transferee fulfilling their responsibilities as described in section 521.357 of the *Canadian Aviation Regulations*.

TRANSFERT DU DOCUMENT D'APPROBATION DE LA CONCEPTION

L'approbation préalable du ministre est exigée en vue d'un transfert de ce document d'approbation de la conception et la réédition de ce document au nom du cessionnaire.

La réédition de ce document d'approbation de la conception au nom du cessionnaire est conditionnelle à la satisfaction des exigences et des responsabilités, du titulaire et du cessionnaire, décrites dans l'article 521.357 du Règlement de l'aviation canadien.

I have reviewed the above requirements and recognize that until the above requirements are met the certificate and all its privileges and obligations will not be transferred.

J'ai examiné les conditions susmentionnées et je comprends que le transfert du certificat et des privilèges et des obligations s'y rattachant ne sera pas effectué tant que ces conditions n'auront pas été respectées.

Signature of holder/signature du titulaire

date/date

Number: SH00-48 Issue 8

NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

<u>Bell 407 only:</u> (Continued) 407 Configuration B - External Cargo Basket (Low Mounted Fixed):

Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration B, External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL606, Revision 3, dated 28 September 2007, or later approved revision. High skid gear is required for the basket installation. Placard is required on the basket lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS 606.01, Revision 2, dated 28 September 2007, or later approved revision, is required with this installation.

AERO Design Ltd. Instructions for Continued Airworthiness ICA492.90, Revision 1, dated 28 September 2007, or later Transport Canada accepted revision, is required with this installation.

Basis of Certification remains as defined in the applicable Type Certificate Data Sheets.

407 Configuration C - External Cargo Basket Installation (High Mounted Fixed):

Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration C, External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL606-1, Revision 1, dated 13 December 2006, or later approved revision. Approved emergency exit "push out " windows or an approved sliding door are required on the side of the helicopter that the basket is installed on if passengers are to be carried. Placard required on the basket lid.

Transport Canada approved AERO Design Ltd., Flight Manual Supplement FMS 606.01 Revision 1 dated 01 February 2005, or later approved revision, is required with this installation.

(continued on page 3)



Number: SH00-48 Issue 8

NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

Bell 407 only: (Continued)

407 Configuration C - External Cargo Basket Installation (High Mounted Fixed):

AERO Design Ltd., Maintenance Instructions MI606.01 Revision 2, dated 19 July 2004, or later accepted revision, are required with this installation.

Basis of Certification remains as defined in the applicable Type Certificate Data Sheets.

407 Configuration D - External Cargo Basket Installation (Low Mounted Quick Release):

Installation of Configuration A, External Attachment Provisions, is a prerequisite for installation of Configuration D, External Cargo Basket Installation. Installation of the Cargo Basket is to be completed in accordance with Transport Canada approved AERO Design Ltd., Document Control List DCL 701, Revision 3, dated 2 December 2008, or later approved revision. High skid gear is required for the basket installation. Placard required on the lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS701.90, Revision 2, dated 17 July 2008, or later approved revision is required with this installation.

AERO Design Ltd., Instructions for Continued Airworthiness ICA 698.90, Revision 1, dated 9 November 2006, or later accepted revision is required with this installation.

Basis of Certification is defined by the applicable Type Certificate Data Sheets.

Bell 407 Configuration E - External Cargo Basket Installation (High Mounted Quick Release)

Installation of Configuration A, External Attachment Provisions, is a prerequisite for installation of Configuration E, External Cargo Basket Installation. Installation of the Cargo Basket is to be completed in accordance with Transport Canada approved AERO Design Ltd., Document Control List DCL 766-1, Revision 1, dated 23 September 2008, or later approved revision. Approved emergency exit "push out" windows or an approved sliding door are required on the side of the helicopter that the basket is installed on if passengers are to be carried. Placard required on the lid.

(continued on page 4)



Number: SH00-48 Issue 8

NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS766.91, Revision 0, dated 30 October 2007, or later approved revision, is required with this installation.

AERO Design Ltd., Instructions for Continued Airworthiness ICA 766.90, Revision 0, dated 26 September 2007, or later accepted revision, is required with this installation.

Basis of Certification is defined by the applicable Type Certificate Data Sheets.

Bell 206L, L-1, L-3, L-4 only:

206L Series Configuration A - External Attachment Provisions Only:

Installation of the External Attachment Provisions is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 493, Revision 6, dated 10 May 2006, or later approved revision.

Transport Canada approved AERO Design Ltd. Flight Manual Supplement FMS 493.01, Revision 0, dated 19 May 2002, or later approved revision, is required with this installation.

AERO Design Ltd. Instructions for Continued Airworthiness ICA 493.90, Revision 0, dated 4 May 2006, or later Transport Canada accepted revision, is required with this installation.

External Attachment Provisions installed in accordance with DCL493 may remain installed if the basket installation is removed.

Basis of Certification is as defined in the Type Certificate Data Sheets, plus FAR27 at amendment 27-24.

(continued on page 5)

Number: SH00-48 Issue 8

NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

206L Series Configuration B - External Cargo Basket (Low Mounted Fixed):

Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration B, External Cargo Basket installation. Installation of the cargo basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL492, Revision 6, dated 28 September 2007, or later approved revision. High skid gear is required for the basket installation. Placard is required on the basket lid.

Transport Canada approved AERO Design Ltd., Flight Manual Supplement FMS 492.01, Revision 2, dated 28 September 2007, or later approved revision, is required with this installation.

AERO Design Ltd., Instructions for Continued Airworthiness ICA492.90, Revision 1, dated 28 September 2007, or later Transport Canada accepted revision, is required with this installation.

Basis of Certification is as defined in the Type Certificate Data Sheets, plus FAR27 at amendment 27-24.

206L Series Configuration C - External Cargo Basket Installation (Low Mounted Quick Release):

Installation of Configuration A, External Attachment Provisions, is a prerequisite for installation of Configuration C, External Cargo Basket Installation. Installation of the Cargo Basket is to be completed in accordance with Transport Canada approved AERO Design Ltd., Document Control List DCL 702, Revision 2, dated 2 December 2008, or later approved revision. High skid gear is required for the basket installation. Placard required on the lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS702.90, Revision 2, dated 17 July 2008, or later approved revision is required with this installation.

AERO Design Ltd., Instructions for Continued Airworthiness ICA 698.90, Revision 1, dated 9 November 2006, or later accepted revision is required with this installation.

Basis of Certification is defined by the applicable Type Certificate Data Sheets, plus FAR 27 amendment 27-30.

(continued on page 6)



Number: SH00-48 Issue 8

NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

206L Series Configuration D - External Cargo Basket Installation (High Mounted Quick Release):

Installation of Configuration A External Attachment Provisions is a prerequisite for installation of Configuration D. External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada Approved Aero Design Ltd. Document Control List DCL766-1, Revision 1, dated 23 September 2008, or later approved revision. Approved emergency exit "push-out" windows or an approved sliding door are required on the side of the helicopter that the basket is installed on if passengers are to be carried. Placard is required on the basket lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS 766.92, Revision 0, dated 30 October 2007, is required with this installation.

Transport Canada accepted, AERO Design Ltd., Instructions for Continued Airworthiness ICA 766.90, Revision 0, dated 26 September 2007, or later accepted revision, is required with this installation.

Basis of Certification is defined by the applicable Type Certificate Data Sheets, plus FAR 27 at amendment 27-30 (Bell 407 basis).

All Models (Bell 206L series and 407)

Auxiliary Step Installation:

Installation of the Auxiliary Step is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL623, Revision 3, dated 17 November 2010, or later approved revision.

Transport Canada accepted AERO Design Ltd. Instructions for Continued Airworthiness ICA 623.91 Rev 0 dated 5 May 2010, or later accepted revision, is required with this installation.

The auxiliary step is optional and is not required with installations listed above.

Auxiliary Step installed in accordance with DCL623 may remain installed if the basket installation is removed.

Basis of Certification is as defined in the Type Certificate Data Sheets, plus FAR 27 amendment 27-30. (continued on page 7)



Number: SH00-48 Issue 8

NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

<u>All Models (Bell 206L series and 407)</u> Cargo Basket Modifications:

Modifications to the cargo basket configurations are eligible in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL704, Revision 6, dated 29 April 2010, or later approved revision. Eligibility limitations are noted on the drawings.

Quick Release Step Installation:

Installation of the Low Mounted Quick Release Cargo Basket (407 – Configuration D; 206L – Configuration C) is required prior to installation of the Quick Release Step. Installation of the Quick Release Step is to be completed in accordance with Transport Canada approved, AERO Design Ltd. Document Control List DCL800-2, Rev. 0, dated 2 December 2008, or later approved revision.

The Quick Release Step is optional and is not required with the Quick Release Cargo Basket Installation. The Quick Release Step may be stowed in the inboard position on the mounting provisions when the Quick Release Cargo Basket is installed.

AERO Design Ltd. Instructions for Continued Airworthiness ICA 800.90, Revision 2, dated 2 December 2008, or later accepted revision, is required with this installation.

Basis of Certification is as defined by the applicable Type Certificate Data Sheets, plus FAR 27, amendment 27-30.

− End −

DOCUMENT CONTROL LIST

DOCUMENT NO.	DOCUMENT CONTENT	REVISION
INSTALLATION DOCUMENTS	ų.	
70101 70102	Quick Release Cargo Basket Installation Quick Release Mounting Provisions Installation	3 0
ICA698.90	Instructions for Continued Airworthiness	1
FMS701.90	Flight Manual Supplement	2
SI698.91	Service Instructions – Sliding Door Modification	0
FABRICATION DOCUMENTS DCL698-1 DCL698-2	Document Control List for Quick Release Cargo Basket Document Control List for Beams	1 3
ENGINEERING DOCUMENTS		
APPROVAL: Transport Transports Canada Canada AIRCRAFT CERTIFICATION DIVISION	ORIGINAL DATE: 10 May, 2006 REVISION DATE: 2 December, 2008 AERO DESIG 2013 – 39 th Ave NE, Calgary, A Ph. (403) 250-80 Fax. (403) 250-83	lberta, T2E 6R7 27
APPROVED By // Appril No. SHOO-48	SHEET 1 OF 1 Quick Release Carg	-
Appr'l Date 60-12-08 Issue No. 7 Issue Date 09-04-07 YY-MM-DD	DCL701	Rev.

BELL 407

ROTORCRAFT FLIGHT MANUAL SUPPLEMENT for the INSTALLATION of the AERO DESIGN QUICK RELEASE CARGO BASKET AND/OR QUICK RELEASE STEP

Supplemental Type Certificate No. SH00-48

Sections I, II, III and IV of this document comprise the Transport Canada Approved sections of this Flight Manual Supplement. Compliance with Section I, Limitations, is mandatory.

Section V and any subsequent sections if present are Unapproved and are provided for information only.

The information and data contained in this Flight Manual Supplement supersede or supplement that contained in the basic Approved Flight Manual for the Bell 407 when fitted with the Quick Release Cargo Basket or Quick Release Step Installation. For limitations, procedures and performance not listed in this Flight Manual Supplement, refer to the Approved Flight Manual and other approved Flight Manual Supplements.

Transport Transports
Canada Canada

AIRCRAFT CERTIFICATION
DIVISION

APPROVED

By
Approval Date 99-04-07
YY-MM-DD

Revision 2 17 July, 2008 APR 0 7 2009 Page 1 TRANSPORT CANADA APPROVED

Table of Contents

1	Limitations	3
П	Normal Procedures	3
Ш	Emergency Procedures	3
IV	Performance	4
٧	Weight and Balance	5
VI	Installation / removal instructions	7

Record of Revisions

Revision	Issue Date	Pages Revised	Date Inserted	Ву
0	05 May, 2006	None		
1	09 Nov, 2006	2, 6		
2	17 July, 2008	All		

I LIMITATIONS

- The maximum load in the AERO Design Ltd. Quick Release Cargo Basket is 200 lb. (90.5 kg).
- Flight operations limited to VFR conditions with AERO Design Ltd. Cargo Basket installed.
- 3. Maximum lateral or rearward speed limited to 25 KIAS.
- Maximum winds from aft quadrants limited to 25 KIAS for takeoff, landing or hover flight.
- 5. V_{NE} is 140 KIAS except when the V_{NE} of the basic rotorcraft is more restrictive, in which case the lower V_{NE} applies.
- 6. Quick Release Step may be installed when the basket is removed.

II NORMAL PROCEDURES

- 1. Pre-flight inspections:
 - Ensure that all cargo stored in the cargo basket does is properly tied down and secured for flight.
 - b) Ensure that the lid of cargo basket is closed and secured.
 - Ensure the basket is locked in postion on the beams. Pull up on the forward and aft end of the basket to check.
 - d) Ensure the step is locked in position on the beams. Pull up on the forward and aft end of the step to check.

CAUTION

It is possible to exceed the lateral centre of gravity limits of the rotorcraft under some loading conditions. Pilots must ensure that lateral C of G is within limits when loading the basket.

III EMERGENCY PROCEDURES

No change from basic Approved Flight Manual.

CAUTION:

The rotorcraft glide angle is steeper than that of the basic helicopter when the AERO Design Ltd. Cargo Basket is installed.

Revision 2 17 July, 2008 APR 0 7 2009

Page 3

TRANSPORT CANADA APPROVED

AERO DESIGN LTD.

FMS701.90

IV PERFORMANCE

Climb performance may be reduced by up to 200 fpm.

Cruise speeds are reduced by approximately 10 kts. (11 mph).

Revision 2 17 July, 2008 APR 0 7 2009

Page 4

TRANSPORT CANADA APPROVED

V WEIGHT AND BALANCE

1. The following weight and balance is for the low mounted quick release cargo basket configuration, installed in accordance with drawing 70101.

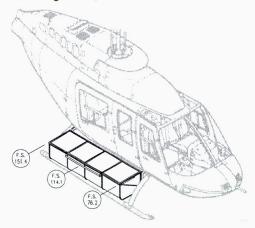


Figure 1 - Low Mounted Quick Release Cargo Basket Configuration

Low Mounted Quick Release Cargo Basket Configuration

Item	Weight Lo		ngitudinal	Lateral	
1.0111	Worgin	Arm	Moment	Arm	Moment
Basket	45.0 lb	114.1 in	5134 in*lb	38.5 in	1733 in*lb
Only ¹	20.4 kg	2898 mm	59 122 mm*kg	978 mm	19 949 mm*kg
Cargo ²	200 lb	114.1 in	22 820 in*lb	38.5 in	7700 in*lb
(MAX)	90.9 kg	2898 mm	263 467 mm*kg	978 mm	88 900 mm*kg

¹ Weight and balance is for Cargo Basket only. Mounting beams and attachment provisions are not included since they should have been included in the basic rotorcraft weight and balance at time of initial installation.

CAUTION:

It is possible to exceed lateral CG limits in some configurations.

Revision 2 17 July, 2008 Page 5

² Longitudinal and Lateral moment arms are given only for the center of the Cargo Basket. Due to the length of the basket, some loading arrangements may require that actual moment arms be measured, to determine the correct moments about the center of gravity.

2. The following weight and balance is for the quick release step configuration, installed in accordance with drawing 80002.

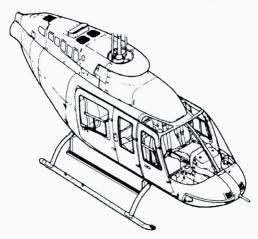


Figure 2 - Low Mounted Quick Release Cargo Basket Configuration

Low Mounted Quick Release Step Configuration

Item Weight		Longitudinal		Lateral	
110111	Worgin	Arm	Moment	Arm	Moment
Step	8.2 lb	114.1 in	935.6 in*lb	29.3 in	239.9 in*lb
Only ¹	3.7 kg	2898 mm	10 723 mm*kg	744 mm	2 754 mm*kg

Low Mounted Quick Release Step Configuration (Stowed Position)

Item	Weight	Loi	ngitudinal		Lateral
1.0111	Worgin	Arm	Moment	Arm	Moment
Step	8.2 lb	114.1 in	935.6 in*lb	23.7 in	194.3 in*lb
Only ¹	3.7 kg	2898 mm	10 723 mm*kg	602 mm	2 227 mm*kg

¹ Weight and balance is for Step only. Mounting beams and attachment provisions are not included since they should have been included in the basic rotorcraft weight and balance at time of initial installation.

VI INSTALLATION / REMOVAL INSTRUCTIONS

The Quick Release Mounting Provisions are installed in accordance with drawing 70102. The Quick Release Basket is installed in accordance with drawing 70101. The Quick Release Step is installed in accordance with drawing 80002. Removal of the basket or step leaving the beams in place is an approved configuration for flight. Logbook entry indicating installation or removal of basket or step and which weight and balance amendment is in effect is required.

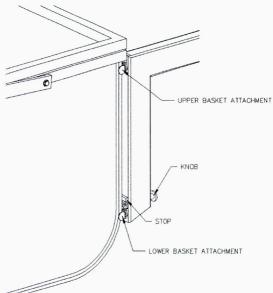


Figure 3 - Basket Attachment

- 1. Basket Installation Refer to Figure 3.
 - 1. Set basket upper attachment into slot on forward and aft beams.
 - At forward end of basket, lift until lower attachment fitting hits stop over keyway. Push fitting into keyway and slide basket down until locked. Repeat for aft end.
- 2. Basket Removal Refer to Figure 3.
 - Pull knob at bottom end of forward beam and lift basket until lower attachment fitting is free of keyway. Keep upper basket attachment in slot in beam. Repeat for aft end.

2. Lift basket until upper attachments are out of slots on beams and remove basket from helicopter.

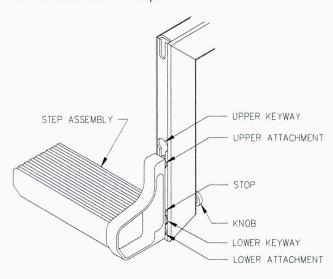


Figure 4 - Step Attachment

- 3. Step Installation Refer to Figure 4.
 - 1. Set upper attachment into upper keyway on forward and aft beams.
 - Lift step until lower attachment hits stop over keyway. Push fitting into keyway and slid down until locked.
- 4. Step Removal Refer to Figure 4.
 - Pull knob at bottom end of forward beam and lift step until the lower attachment fitting is free of keyway. Keep upper attachment in keyway in beam. Repeat for aft end.
 - 2. Lift step until upper attachments are out of keyways in beams and remove from helicopter.

DOCUMENT CONTROL LIST

DOCUMENT NO.	DOCU	MENT CONTENT	REVISION
INSTALLATION DOCUMENTS			
70201 70202	Quick Release Cargo Quick Release Moun	3 0	
ICA698.90	Instructions for Conti	nued Airworthiness	1
FMS702.90	Flight Manual Supple	ement	2
FABRICATION DOCUMENTS			
DCL698-1	Document Control Lis	st for Quick Release Cargo Basket	1
DCL698-2	Document Control Lis	st for Beams	3
ENGINEERING DOCUMENTS			
APPROVAL:	ORIGINAL DATE:	AERO DESIGN	J I TD
Transport Transports Canada Canada	10 May, 2006	2013 – 39 th Ave NE, Calgary, Alt	perta, T2E 6R7
AIRCRAFT CERTIFICATION DIWISION	REVISION DATE: 2 December, 2008	Ph. (403) 250-802 Fax. (403) 250-833	
By APPROVED By Appril No. SHOO-48	Bell 206L Series SHEET 1 OF 1 Quick Release Cargo Baske Installation		
Appr'l Date 00 - 12 - 08 Issue No. 7 Issue Date 09 - 04 - 07 YY - MM - DD	D	CL702	2

24

BELL 206L SERIES

ROTORCRAFT FLIGHT MANUAL SUPPLEMENT for the INSTALLATION of the AERO DESIGN QUICK RELEASE CARGO BASKET

AND/OR QUICK RELEASE STEP

Supplemental Type Certificate No. SH00-48

Sections I, II, III and IV of this document comprise the Transport Canada Approved sections of this Flight Manual Supplement. Compliance with Section I, Limitations, is mandatory.

Section V and any subsequent sections if present are Unapproved and are provided for information only.

The information and data contained in this Flight Manual Supplement supersede or supplement that contained in the basic Approved Flight Manual for the Bell 206L Series when fitted with the Quick Release Cargo Basket or Quick Release Step Installation. For limitations, procedures and performance not listed in this Flight Manual Supplement, refer to the Approved Flight Manual and other approved Flight Manual Supplements.

Transports Canada

AIRCRAFT CERTIFICATION DIVISION

APPROVED

By Jana

Approval Date 09-04-07

YY-MM-DD

Revision 2 17 July, 2008 APR 0 7 2009 Page 1 TRANSPORT CANADA APPROVED

Table of Contents

1	Limitations	3
II	Normal Procedures	3
Ш	Emergency Procedures	3
IV	Performance	3
٧	Weight and Balance	4
VΙ	Installation / removal instructions	6

Record of Revisions

Revision	Issue Date	Pages Revised	Date Inserted	Ву
0	05 May, 2006	None		
1	09 Nov, 2006	2, 6		
2	17 July, 2008	All		

I LIMITATIONS

- 1. The maximum load in the AERO Design Ltd. Quick Release Cargo Basket is 200 lb. (90.5 kg).
- Flight operations limited to VFR conditions with AERO Design Ltd. Cargo Basket installed.
- 3. Quick Release Step may be installed when the basket is removed.

II NORMAL PROCEDURES

- 1. Pre-flight inspections:
 - Ensure that all cargo stored in the cargo basket does not extend outside the basket, is properly tied down and secured for flight.
 - b) Ensure that the lid of cargo basket is closed and secured.
 - Ensure the basket is locked in postion on the beams. Pull up on the forward and aft end of the basket to check.
 - Ensure the step is locked in position on the beams. Pull up on the forward and aft end of the step to check.

CAUTION

It is possible to exceed the lateral centre of gravity limits of the rotorcraft under some loading conditions. Pilots must ensure that lateral C of G is within limits when loading the basket.

III EMERGENCY PROCEDURES

No change from basic Approved Flight Manual.

CAUTION:

The rotorcraft glide angle is steeper than that of the basic helicopter when the AERO Design Ltd. Cargo Basket is installed.

IV PERFORMANCE

Climb performance may be reduced by up to 350 fpm with the basket installed.

Cruise speeds are reduced by approximately 10 mph with the basket installed.

Revision 2 17 July, 2008 APR 0 7 2009 Page 3 TRANSPORT CANADA APPROVED

V WEIGHT AND BALANCE

1. The following weight and balance is for the low mounted quick release cargo basket configuration, installed in accordance with drawing 70201.

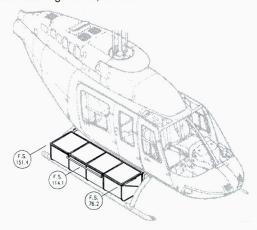


Figure 1 – Low Mounted Quick Release Cargo Basket Configuration

Low Mounted Quick Release Cargo Basket Configuration

Item Weight		Longitudinal		Lateral	
110111	Worgin	Arm	Moment	Arm	Moment
Basket	45.0 lb	114.1 in	5134 in*lb	38.5 in	1733 in*lb
Only ¹	20.4 kg	2898 mm	59 122 mm*kg	978 mm	19 949 mm*kg
Cargo ²	200 lb	114.1 in	22 820 in*lb	38.5 in	7700 in*lb
(MAX)	90.9 kg	2898 mm	263 467 mm*kg	978 mm	88 900 mm*kg

¹ Weight and balance is for Cargo Basket only. Mounting beams and attachment provisions are not included since they should have been included in the basic rotorcraft weight and balance at time of initial installation.

CAUTION:

It is possible to exceed lateral CG limits in some configurations.

Revision 2 17 July, 2008 Page 4

² Longitudinal and Lateral moment arms are given only for the center of the Cargo Basket. Due to the length of the basket, some loading arrangements may require that actual moment arms be measured, to determine the correct moments about the center of gravity.

2. The following weight and balance is for the quick release step configuration, installed in accordance with drawing 80002.

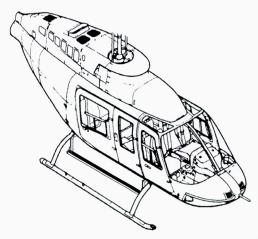


Figure 2 - Low Mounted Quick Release Cargo Basket Configuration

Low Mounted Quick Release Step Configuration

Item Weight		Longitudinal		Lateral	
itom	Weight	Arm	Moment	Arm	Moment
Step	8.2 lb	114.1 in	935.6 in*lb	29.3 in	239.9 in*lb
Only ¹	3.7 kg	2898 mm	10 723 mm*kg	744 mm	2 754 mm*kg

Low Mounted Quick Release Step Configuration (Stowed Position)

Item	Weight	Loi	ngitudinal		Lateral
110111	Weight	Arm	Moment	Arm	Moment
Step	8.2 lb	114.1 in	935.6 in*lb	23.7 in	194.3 in*lb
Only ¹	3.7 kg	2898 mm	10 723 mm*kg	602 mm	2 227 mm*kg

¹ Weight and balance is for Step only. Mounting beams and attachment provisions are not included since they should have been included in the basic rotorcraft weight and balance at time of initial installation.

VI INSTALLATION / REMOVAL INSTRUCTIONS

The Quick Release Mounting Provisions are installed in accordance with drawing 70202. The Quick Release Basket is installed in accordance with drawing 70201. The Quick Release Step is installed in accordance with drawing 80002. Removal of the basket or step leaving the beams in place is an approved configuration for flight. Logbook entry indicating installation or removal of basket or step and which weight and balance amendment is in effect is required.

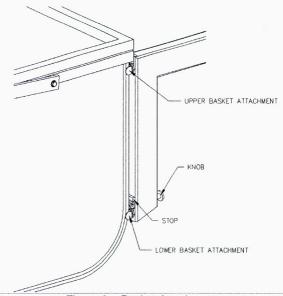


Figure 3 - Basket Attachment

- 1. Installation Refer to Figure 3.
 - 1. Set basket upper attachment into slot on forward and aft beams.
 - At forward end of basket, lift until lower attachment fitting hits stop over keyway. Push fitting into keyway and slide basket down until locked. Repeat for aft end.
- 2. Removal Refer to Figure 3.
 - Pull knob at bottom end of forward beam and lift basket until lower attachment fitting is free of keyway. Keep upper basket attachment in slot in beam. Repeat for aft end.

2. Lift basket until upper attachments are out of slots on beams and remove basket from helicopter.

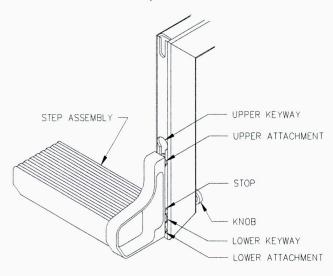


Figure 4 - Step Attachment

- 3. Step Installation Refer to Figure 4.
 - 1. Set upper attachment into upper keyway on forward and aft beams.
 - 2. Lift step until lower attachment hits stop over keyway. Push fitting into keyway and slid down until locked.
- 4. Step Removal Refer to Figure 4.
 - Pull knob at bottom end of forward beam and lift step until the lower attachment fitting is free of keyway. Keep upper attachment in keyway in beam. Repeat for aft end.
 - 2. Lift step until upper attachments are out of keyways in beams and remove from helicopter.

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS ICA 698.90

QUICK RELEASE CARGO BASKET

Preface

These Instructions for Continued Airworthiness shall be included in the rotorcraft Maintenance Manual when the Quick Release Cargo Basket assembled in accordance with AERO Design Ltd. Document Control List DCL698-1, Revision 0, and DCL698-2, Revision 0, or later approved revision, is installed.

The information contained herein supplements the information in the basic Maintenance Manual. For Maintenance practices and procedures not contained in these Instructions for Continued Airworthiness refer to the basic Maintenance Manual and its approved supplements.

Revision 1 Date: 9 November, 2006

<u>AERO Design Ltd.</u> Engineering Consultants 2013 – 39th Avenue N.E., Calgary, Alberta T2E 6R7

Phone: (403) 250-8027 Fax: (403) 250-8333

E-Mail: infor@aerodesign.ca

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RECORD OF REVISIONS

Revision Number	Issue Date	Date Inserted	Ву	
0			Original Issue	

LIST OF EFFECTIVE PAGES

List of Revisions	Revision (0 (Original Issue) 1	20 April, 2006 9 November, 2006
List of Effective Pages			
<u>Description</u>		<u>Pages</u>	Revision No.
Cover		1	1
Revision Record/List of Effective	e Pages	2	1
Table of Contents		3	0
00-00-00		4-6	0
04-00-00		7	0
05-00-00		8-9	1
11-00-00		11	0
25-50-00		12-14	1

TABLE OF CONTENTS

RECORD OF	REVISIONS		2	
LIST OF EFFECTIVE PAGES				
CHAPTER 0 -	- INTRODUCTION		4	
0-1	SCOPE		4	
0-2	DEFINITIONS AND ABBREVIATIONS		4	
0-3	DISTRIBUTION		4	
0-4	COMPATIBILITY		4	
0-5	GENERAL DESCRIPTION		5	
0-6	STRUCTURAL PROVISIONS		6	
CHAPTER 4 -	AIRWORTHINESS LIMITATIONS		7	
CHAPTER 5 -	- INSPECTION REQUIREMENTS		8	
5-1	INSPECTION SCHEDULE		8	
5-2	DAMAGE LIMITS / REPAIR INSTRUCTIONS		9	
5-3	PROTECTIVE TREATMENT INFORMATION		10	
CHAPTER 11	 MARKINGS AND PLACARDS 		11	
CHAPTER 25	 EQUIPMENT AND FURNISHINGS 		12	
SEC1	TION 50 – CARGO COMPARTMENTS		12	
25-1	BEAMS INSTALLATION		12	
25-2	BEAMS REMOVAL		12	
25-3	BASKET INSTALLATION		13	
25-4	BASKET REMOVAL		13	
25-5	WEIGHT AND BALANCE		14	
25-6	STRUCTURAL FASTENER DATA		14	

CHAPTER 0 – INTRODUCTION

0-1 SCOPE

The following Instructions for Continued Airworthiness (ICA) satisfy the requirements of 14 CFR 27.1529, and provide the information necessary to complete the on-going maintenance and inspections required for rotorcraft embodying the Quick Release Cargo Basket as described herein.

0-2 DEFINITIONS AND ABBREVIATIONS

ICA - Instructions for Continued Airworthiness

LH - Left Hand RH - Right Hand

0-3 DISTRIBUTION

Copies of this ICA and amendments shall be distributed to all known purchasers of the Quick Release Cargo Basket. Requests for a copy may be made in writing to:

AERO Design Ltd. 2013 39th Avenue N.E. Calgary, Alberta T2E 6R7

Fax: 403-250-8333

Email: info@aerodesign.ca

Any changes will be sent to Transport Canada. All changes will be recorded in the Record of Revisions page at the front of this document.

0-4 COMPATIBILITY

Prior to incorporating this modification, the installer shall establish that the interrelationship between this change and any other modification(s) incorporated will not adversely affect the airworthiness of the helicopter.

Revision 0 00-00-00

0-5 GENERAL DESCRIPTION

The cargo basket installation is a metal mesh basket installed to the side of the helicopter on beams attached to landing gear fittings with attachment provisions incorporated. The quick release basket allows for the installation and removal of the basket without tools, allowing a pilot operating in the field without maintenance support to install or remove the basket.

The basket itself is 75.75" long, 22.5" wide, and 17" high. It is made of a steel welded tubing structure, and lined with expanded steel mesh. The basket has a hinged lid with a self-locking handle.

The beams are steel tubing which attach to the landing gear fittings and stick out from the side of the helicopter. The quick release mechanism is built into the beams.

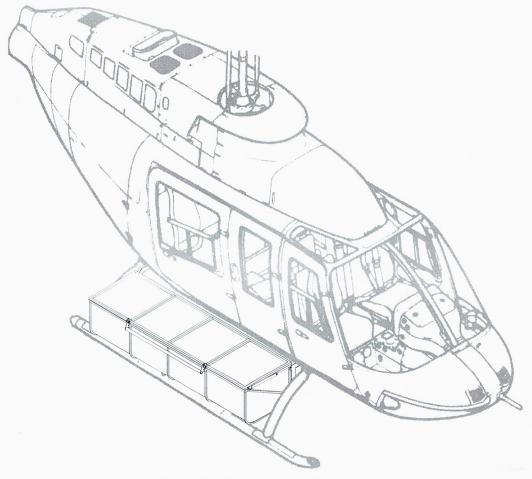


Figure 1 – Cargo Basket Installation

0-6 STRUCTURAL PROVISIONS

The External Attachment Provisions are installed on the helicopter in accordance with drawing 49301 (Bell 206L Series) or 60602 (Bell 407). That installation is separate from the basket installation. The External Attachment Provisions are not included in this ICA.

The external attachment provisions consist of replacement landing gear fittings that incorporate a barrel nut for installing equipment. Each fitting is bolted to the lower fuselage and landing gear with the same fasteners as used for the original fittings, as shown in Figure 2.

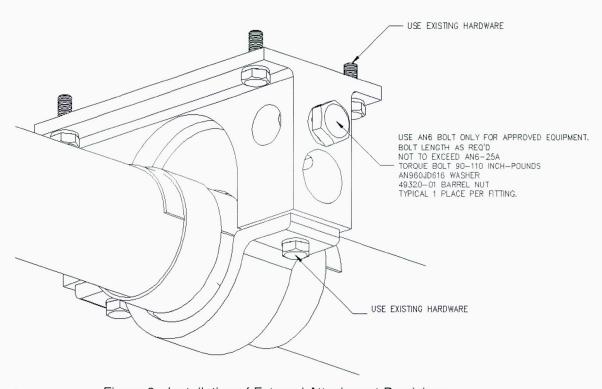


Figure 2 - Installation of External Attachment Provisions

CHAPTER 4 - AIRWORTHINESS LIMITATIONS

The Airworthiness Limitations section is Transport Canada-approved and specifies maintenance required under Section 571 of the Canadian Aviation Regulations, unless an alternative program has been approved.

No additional airworthiness limitations have been imposed due the installation of the Quick Release Cargo Basket.

Revision 0 **04-00-00** Page 7

CHAPTER 5 – INSPECTION REQUIREMENTS

5-1 INSPECTION SCHEDULE

Continued airworthiness is contingent upon compliance with the following inspection items. These items shall be completed in conjunction with the rotorcraft Maintenance Inspection schedule, or other approved program, or upon removal and replacement of any component of Quick Release Cargo Basket.

Daily Inspection

- 1. Inspection Area: Basket
 - a) Inspect the basket attachment to the beams for condition and security. Ensure quick release mechanism is completely extended, flush with the outboard surface of the beam.
 - b) Inspect latching of the lid for correct operation. If basket is bent inward the lid will close but may not latch.

300 Hour or Annual Inspection

- 1. Inspection Area: Basket
 - a) Visually inspect tube-to-tube welds and mesh-to-tube welds for cracks, corrosion or other damage.
 - b) Visually inspect basket mesh for damage.
- 2. Inspection Area: Beams
 - a) Visually inspect beams attaching basket to the helicopter for cracks, corrosion or other damage.
 - b) Visually inspect lugs attaching the basket to the beams hours for security and damage.
 - c) Visually inspect bolts attaching beams to external attachment provisions for security and damage.

Special Inspections

Following a hard landing inspect the Quick Release Cargo Basket installation in accordance with the 300 hour or annual inspection listed above.

5-2 DAMAGE LIMITS / REPAIR INSTRUCTIONS

If damage is found in the inspections above, repair in accordance with the instructions below.

1. Basket

- a) Repair Basket in accordance with AC43.13-1B, Chapter 4, Section 5, Welding, as required.
- b) Basket is fabricated from the following materials:

Lid and Rim: 3/4" square steel tube

Frames:

½" square steel tube

Mesh:

3/4" 16 ga. (0.040") expanded steel mesh

c) Touch up with polyurethane paint as required following repairs.

2. Beams

DO NOT REPAIR DAMAGE TO BEAMS IF BEYOND THE LIMITS BELOW.

- a) Nicks and/or gouges on the top or bottom face up to 0.030" deep and 0.125" wide may be dressed out to a smooth contour.
- b) Nicks and/or gouges on the side faces up to 0.060" deep and 0.125" wide may be dressed out to a smooth contour.
- c) Maximum depth for slot is shown in Figure 3. Attempt to insert 27/64 drill shank into bottom end of slot. If drill can be inserted, slot is worn beyond limit.

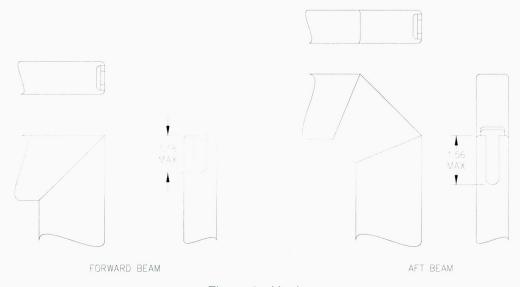


Figure 3 - Hook

d) Touch up with polyurethane paint as required following repairs.

5-3 PROTECTIVE TREATMENT INFORMATION

1. Beams

The beams are supplied powder coated white. If the powder coat is damaged, touch up with white polyurethane paint.

2. Cargo Basket

The cargo basket is supplied powder coated white. If the powder coat is damaged, touch up with white polyurethane paint.

CHAPTER 11 - MARKINGS AND PLACARDS

The following markings and placards are used with the Quick Release Cargo Basket Installation in the locations noted:

a) Located on basket lid:



b) Located on top of forward beam:

69830-01

c) Located on top of aft beam:

69831-01

CHAPTER 25 – EQUIPMENT AND FURNISHINGS

SECTION 50 - CARGO COMPARTMENTS

25-1 BEAMS INSTALLATION

Refer to Figure 4.

- 1. External Attachment Provisions installed in accordance with drawing 49301 (Bell 206L Series) or 60602 (Bell 407) are required prior to installing the Beams.
- 2. Locate 69830-01 Forward Beam on aft side of Forward Landing Gear Fittings. Install two AN6-20A Bolt and AN960-616 Washer into Barrel Nuts in Fittings. Torque AN6 bolts to 90-110 in-lbs.
- 3. Locate 69831-01 Aft Beam on forward side of Aft Landing Gear Fittings. Install two AN6-20A Bolt and AN960-616 Washer into Barrel Nuts in Fittings. Torque AN6 bolts to 90-110 in-lbs.

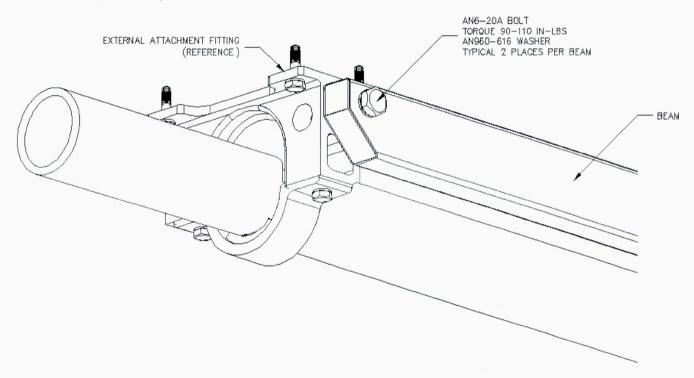


Figure 4 - Beams

25-2 BEAMS REMOVAL

Refer to Figure 4.

- 1. Remove Cargo Basket. Refer to section 25-4.
- 2. Remove two AN6-20A Bolt and AN960-616 Washer from 69830-01 Forward Beam. Remove Forward Beam.

3. Remove two AN6-20A Bolt and AN960-616 Washer from 69831-01 Aft Beam. Remove Aft Beam.

BASKET INSTALLATION 25-3

Refer to Figure 5.

- 1. Set basket upper attachment into slot at top of forward and aft beams.
- 2. At forward end of basket, lift basket until lower attachment fitting hits stop. Push fitting into keyway and slide basket down until locked.
- 3. Repeat step 2 for aft end.

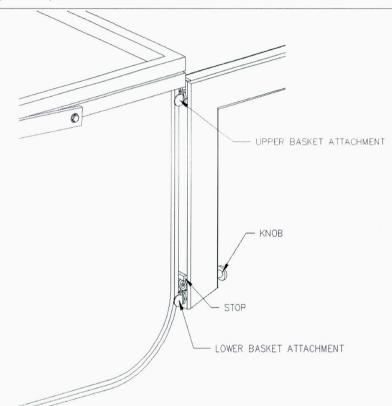


Figure 5 – Basket Attachment

25-4 **BASKET REMOVAL**

Refer to Figure 5.

- 1. Pull knob at bottom end of forward beam and lift basket until lower attachment fitting is free of keyway. Keep upper basket attachment in slot on beam.
- 2. Pull knob at bottom end of aft beam and lift basket until lower attachment fitting is free of keyway. Keep upper basket attachment in slot on beam.
- 3. Lift basket until upper attachments are out of slots on beams and remove basket from helicopter.

25-50-00 Revision 1

25-5 WEIGHT AND BALANCE

Two weight and balance configurations are required for the pilot. The first is the complete installation of Cargo Basket and Beams. The second is Beams only as the basket may be removed in the field by the pilot.

	Configuration 1		Longitudinal		Lateral	
		Weight	Arm	Moment	Arm	Moment
Part #	Name	(lbs)	(in)	(in-lbs)	(in)	(in-lbs)
69830-01	Forward Beam	10.1	76.4	771.6	10.9	110.1
69831-01	Aft Beam	9.8	151.4	1483.7	12.6	123.5
69810-01	Cargo Basket	45.0	114.1	5134.5	38.5	1732.5
	Total	64.9	113.9	7389.8	30.3	1966.1

	Configuration 2		Longitudinal		Lateral	
		Weight	Arm	Moment	Arm	Moment
Part #	Name	(lbs)	(in)	(in-lbs)	(in)	(in-lbs)
69830-01	Forward Beam	10.1	76.4	771.6	10.9	110.1
69831-01	Aft Beam	9.8	151.4	1483.7	12.6	123.5
	Total	19.9	113.3	2255.3	11.7	233.6

25-6 STRUCTURAL FASTENER DATA

Refer to Bell Standard Practices Manual BHT-ALL-SPM for torque values not listed in this ICA.

Revision 1 25-50-00 Page 14

DOCUMENT NO.	DOCU	MENT CONTENT	REVISION	
FABRICATION DOCUMENTS				
69810 69811 69812 69821 69822 69823 69824 69825 69826 69827	Cargo Basket Asser Basket Body Assemble Basket Lid Assemble Basket Components Basket Components Basket Components Basket Components Basket Components Basket Components Basket Components	2 2 0 1 0 0 0 0		
49210 49212 49213 49215 49216	Basket Components Basket Components Basket Components	Basket Components - Hoops Basket Components - Rim Basket Components - Lid Brace Basket Components - Spacer Basket Components - Spacer		
36255 36261 36262 36271 36272 36273 36274 36275 36277 36278 36280, Sheet 1 36280, Sheet 2	Handle Assembly Handle Bar Assemb Handle Bracket Assi Handle Lever Basket Bracket Lid Bracket Bushing Bushing Handle Bar Spring Brace Brace		1 3 1 1 1 1 1 2 0 1 2 2	
ENGINEERING DOCUMENTS ER698.01	Engineering Report		0	
APPROVAL: Transport Transports Canada Canada AIRCRAFT CERTIFICATION DIVISION	ORIGINAL DATE: 3 May, 2006 REVISION DATE: 28 September, 2006	AERO DESIGN 2013 – 39 th Ave NE, Calgary, All Ph. (403) 250-802 Fax. (403) 250-833	berta, T2E 6R7 7	
APPROVED By D. S. Chuster Appril No. S. H. DO-48	SHEET 1 OF 1	Quick Release 0 Basket Assem	•	
Appril Date 00-12-08 Issue No. 6 Issue Date 08-01-30 YY-MM-DD	DC	L698-1	Rev.	

DOCUMENT NO.	DOCUI	MENT CONTENT	REVISION
FABRICATION DOCUMENTS			*
69830 69831	Forward Beam Fabric Aft Beam Fabrication		3 3
	,		
ENGINEERING DOCUMENTS			
ER698.02 TP698.03 ER698.04	Engineering Report Test Plan Engineering Report		0 0 0
APPROVAL:	ORIGINAL DATE: 3 May, 2006	AERO DESIGN	
AIRCRAFT CERTIFICATION	REVISION DATE: 2 December, 2008	2013 – 39 th Ave NE, Calgary, Alt Ph. (403) 250-802 Fax. (403) 250-833	7
APPROVED	SHEET 1 OF 1	Quick Release Mount	ing Rooms
Appr'l No. SHOO-48	STILLT TOT T		
Appr'l Date 00-12-08			Rev.
Issue Date O9-04-07	DC	L698-2	3

DOCUMENT NO.	DOCUM	MENT CONTENT	REVISION
FABRICATION DOCUMENTS			
70401	Open Forward End M (Bell 206L/407 Fixed Quick Release Only)	and McDonnell Douglas MD600N	1
70402	Lid Door Modification	1	
70403	Auxiliary Latch Modif	ication	3
70404	Open Forward End M (Bell 206L/407 Quick	nodification Release Only)	1
70405	Lid Step Modification		2
70406	Open Forward End M (Eurocopter AS350/A Release Only)	odification S355 and Bell 206B Quick	0
70407	Open Forward End M (Eurocopter EC135 C		0
70408 70428 70438	Installation, Hanger Wheel Assembly, Hanger Wheel Parts, Hanger Wheel		0 0 0
ENGINEERING DOCUMENTS ER704.02	Engineering Report		0
APPROVAL Transport Canada E. SURGOIN DAK 2804	ORIGINAL DATE: 10 May 2006 REVISION DATE: April 29, 2010	AERO DESIGN 2013 – 39 th Ave NE, Calgary, Alt Ph. (403) 250-8027 Fax. (403) 250-833	perta, T2E 6R7 7
Apprilia SHOO-48 Apprilia CB Seczces	SHEET 1 OF 1	Cargo Baske Modification	
THIS DCL APPROVED 29 Apr 2010	DC	CL704	6

DOCUMENT NO.	DOCUMEN	T CONTENT	REVISION
INSTALLATION DOCUMENTS 62301	Auxiliary Step Installation		1
FABRICATION DOCUMENTS 62320	Step Assembly		2
ENGINEERING DOCUMENTS ER623.01	Engineering Report		0
APPROVAL: Transport Canada E. BURGOIN DAR 296M	ORIGINAL DATE: 13 January, 2005 REVISION DATE: 21 September, 2006	AERO DESIC 2013 – 39 th Ave Calgary, Albe T2E 6R7 Ph. (403) 250-6 Fax. (403) 250-6	NE rta 8027
Report No. 5 (100 - 48) Appendix 08 DEC 2006	SHEET 1 OF 1	Bell 206L Series Auxiliary Step In	
1880 800 5 1880 200 09 JUNE 1006 1815 DCC APPROVED 26 SEPT 2006	DCI	_623	Rev. 1

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS ICA 623.91

BELL 206L SERIES, 407 AUXILIARY STEP

Preface

These Instructions for Continued Airworthiness shall be included in the rotorcraft Maintenance Manual when the Auxiliary Step assembled in accordance with AERO Design Ltd. Document Control List DCL623, Revision 2, or later approved revision, is installed.

The information contained herein supplements the information in the basic Maintenance Manual. For Maintenance practices and procedures not contained in these Instructions for Continued Airworthiness refer to the basic Maintenance Manual and its approved supplements.

Revision 0 Date: May 5, 2010

<u>AERO Design Ltd.</u> Engineering Consultants 2013 - 39th Avenue N.E., Calgary, Alberta T2E 6R7

Phone: (403) 250-8027 Fax: (403) 250-8333

E-Mail: info@aerodesign.ca

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3/2

RECORD OF REVISIONS

Revision Number	Issue Date	Date Inserted	Ву
0	May 5, 2010		Original Issue
	· ·		

LIST OF EFFECTIVE PAGES

List of Revisions Revision 0 (C

Revision 0 (Original Issue) May 5, 2010

List of Effective Pages

Description	<u>Pages</u>	Revision No.
Cover	1	0
Revision Record/List of Effective Pages	2	0
Table of Contents	3	0
00-00-00	4-5	0
04-00-00	6	0
05-00-00	7-8	0
25-50-00	9-10	0

TABLE OF CONTENTS

RECORD OF R	REVISIONS	2
LIST OF EFFE	CTIVE PAGES	2
CHAPTER 0 - I	INTRODUCTION	4
0-1	SCOPE	4
0-2	DEFINITIONS AND ABBREVIATIONS	4
0-3	DISTRIBUTION	4
0-4	COMPATIBILITY	4
0-5	GENERAL DESCRIPTION	5
CHAPTER 4 - A	AIRWORTHINESS LIMITATIONS	6
CHAPTER 5 - I	INSPECTION REQUIREMENTS	7
5-1	INSPECTION SCHEDULE	7
5-2	DAMAGE LIMITS / REPAIR INSTRUCTIONS	7
5-3	PROTECTIVE TREATMENT INFORMATION	8
CHAPTER 25 -	- EQUIPMENT AND FURNISHINGS	9
25-1	STEP INSTALLATION	9
25-2	STEP REMOVAL	9
25-3	WEIGHT AND BALANCE	10
25-4	STRUCTURAL FASTENER DATA	10

CHAPTER 0 – INTRODUCTION

0-1 SCOPE

The following Instructions for Continued Airworthiness (ICA) satisfy the requirements of 14 CFR 27.1529, and provide the information necessary to complete the on-going maintenance and inspections required for rotorcraft embodying the Auxiliary Step as described herein.

0-2 DEFINITIONS AND ABBREVIATIONS

ICA - Instructions for Continued Airworthiness

LH - Left HandRH - Right Hand

0-3 DISTRIBUTION

Copies of this ICA and amendments shall be distributed to all known purchasers of the Auxiliary Step. Requests for a copy may be made in writing to:

AERO Design Ltd. 2013 39th Avenue N.E. Calgary, Alberta T2E 6R7

Fax: 403-250-8333

Email: info@aerodesign.ca

Any changes will be sent to Transport Canada. All changes will be recorded in the Record of Revisions page at the front of this document.

0-4 COMPATIBILITY

Prior to incorporating this modification, the installer shall establish that the interrelationship between this change and any other modification(s) incorporated will not adversely affect the airworthiness of the helicopter.

0-5 GENERAL DESCRIPTION

The Auxiliary Step installation (62302-01) consists of a fitting attached to the fwd cross tube with a tube that sticks out fwd from the cross tube. The Auxiliary Step is installed to aid access to the helicopter cabin.

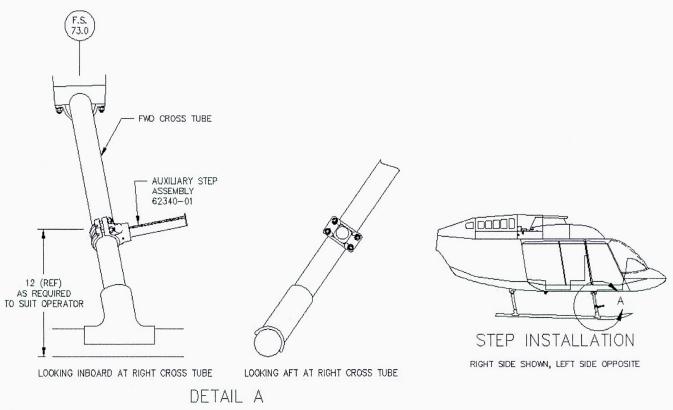


Figure 0-2 – Auxiliary Step Installation

CHAPTER 4 - AIRWORTHINESS LIMITATIONS

Transport Canada

The Airworthiness Limitations section is approved by the Minister and specifies maintenance required by any applicable airworthiness or operating rule unless an alternative program has been approved by the Minister.

FAA

The Airworthiness Limitations section is FAA approved and specifies maintenance required under Sections 43.16 and 91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved.

No additional airworthiness limitations have been imposed due the installation of the Auxiliary Step.

Revision 0 **04-00-00** Page 6

CHAPTER 5 – INSPECTION REQUIREMENTS

5-1 INSPECTION SCHEDULE

Continued airworthiness is contingent upon compliance with the following inspection items. These items shall be completed in conjunction with the rotorcraft Maintenance Inspection schedule, or other approved program, or upon removal and replacement of any component of Auxiliary Step.

100 Hour or Annual Inspection

- 1. Inspection Area: Step
 - a) Visually inspect all mounting hardware for condition and security.
 - b) Visually inspect step for cracks, corrosion or other damage.
 - c) Visually inspect step tube attachment to socket fitting. Step tube must not be loose in socket.

Special Inspections

1. Following a hard landing inspect the Auxiliary Step installation in accordance with the 100 hour or annual inspection listed above.

5-2 DAMAGE LIMITS / REPAIR INSTRUCTIONS

If damage is found in the inspections above, repair in accordance with the instructions below.

1. Auxiliary Step Assembly 62340

Part	Type of Damage	Max. Allowable	Repair
Step Tube	Corrosion	0.010" deep	Blend up to 0.010" deep with scotchbrite.
	Scratches / Nicks	0.010" deep x 0.5" long	Blend up to 0.010" deep with scotchbrite.
	Cracks	None	N/A
	Permanent bend	*Note	None
Fitting	Corrosion	0.030" deep	Blend up to 0.030" deep with scotchbrite.
	Scratches /	0.060" deep x 0.5" long	Blend up to 0.060" deep with
	Nicks		scotchbrite.
	Cracks	None	N/A
	Elongation of socket hole	None	N/A

^{*}Note: Minor bending of the step tube that does not cause the tube to become loose in the socket is acceptable.

Revision 0 **05-00-00**

5-3 PROTECTIVE TREATMENT INFORMATION

1. Step Assembly

The Step Assembly is supplied powder coated white. If the powder coat is damaged, touch up with white polyurethane paint. The tread area is painted with anti-skid paint. If the anti-skid paint is damaged, touch up with Randolph X1567 Wingwalk grip paint or equivalent.

Revision 0 **05-00-00** Page 8

CHAPTER 25 – EQUIPMENT AND FURNISHINGS

The Auxiliary Step Installation may be applied to the right and/or left side of the helicopter.

25-1 STEP INSTALLATION

 Locate Step Assembly 62340-01 on fwd cross tube. Fasten one side with AN4-14A Bolts (X2), AN960-416 Washers (X4), and MS21044N4 Nuts (X2); fasten opposite side with FT4F-175H T-Bolt (X2), AN960-416 Washers (X2) and MS21044N4 Nuts (X2). Rotate step until orientated forward. Torque nuts to 50-70 in-lbs.

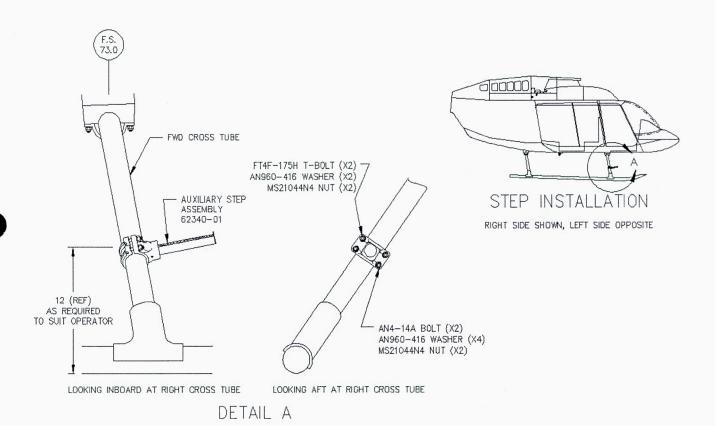


Figure 2 – Auxiliary Step Attachment Details

25-2 STEP REMOVAL

Refer to Figure 2.

 Remove all AN4-14A Bolts, FT4F-175H T-Bolts, AN960-416 Washers, and MS21044N4 Nuts attaching Step Assembly to fwd cross tube. Remove Step Assembly.

25-3 WEIGHT AND BALANCE

Standard

P/N	Description	Weight	Longitudinal		La	teral
			arm	moment	arm	moment
		lb	in	in-lb	in	in-lb
62302-01	Auxiliary Step Inst'n (Right)	1.0	68.6	68.6	42.1	42.1
62302-01	Auxiliary Step Inst'n (Left)	1.0	68.6	68.6	-42.1	-42.1

Metric

P/N	Description	Weight	Longitudinal		La	teral
	¥		arm	moment	arm	Moment
		kg	mm	mm-kg	mm	mm-kg
62302-01	Auxiliary Step Inst'n (Right)	0.45	1742	784	1069	481
62302-01	Auxiliary Step Inst'n (Left)	0.45	1742	784	-1069	-481

25-4 STRUCTURAL FASTENER DATA

Refer to Standard Practices Manual for torque values not listed in this ICA.





1100-9700 Jasper Avenue Edmonton, Alberta T5J 4E6

Your file

Votre reference

April 14, 2011

Our file Notre reference

C-09-0443 SH00-48

Aero Design Ltd. 2013 39th Avenue North East Calgary, Alberta Canada, T2E 6R7

ATTENTION: Edward Burgoin - DAR 290M

Dear Sirs:

SUBJECT:

Approval of

Installation of Cargo Basket / External

Attachment Provisions/Optional Step.

FAA STC:

SR02253NY

Aircraft:

Bell 206L, 206L-1, 206L-3, 206L-4, 407

FAA STC Holder:

Aero Design Ltd.

Enclosed is the original FAA Supplemental Type Certificate SR02253NY and information concerning your responsibility as a holder of a Supplemental Type Certificate issued to a Canadian Applicant.

FAA STC SR02253NY is based on Issue 8 of Canadian STC SH00-48.

Yours truly,

J Staal Aircraft Certification Engineering Technologist

Prairie and Northern Region

Phone: 780-495-5227 Facs: 780-495-7963

Encl.



NEW ENGLAND REGION NEW YORK AIRCRAFT CERTIFICATION OFFICE 1600 STEWART AVENUE, SUITE 410 WESTBURY, NEW YORK 11590

INFORMATION CONCERNING YOUR RESPONSIBILITY AS HOLDER OF A SUPPLEMENTAL TYPE CERTIFICATE ISSUED TO A CANADIAN APPLICANT

This STC is official indications of FAA approval of your installation and may be used to authorize identical installation on other aircraft of the same model, subject to the limitation noted in the STC. It may be transferred, or otherwise made available to another party by means of a licensee arrangement; however, you are requested to advise this office when you transfer or grant licensee rights to the STC in order that we may take the necessary recording or reissuance action.

If you plan to manufacture and sell parts for installation on type certificated aircraft, please review FAR 21.502, which is applicable to parts imported into the U.S.

A copy of the STC and required documents should accompany each kit and installation. Also, your attention is directed to the limitations and conditions specified in the STC.

As recipient of this approval, except as provided in FAR21.3(d), you are required to report any failure, malfunction, or defect in any product or part manufactured by you that you have determined has resulted or could result in any of the occurrences listed in FAR 21.3(c).

The report should be communicated initially by telephone and subsequently in writing to the Manager, New York Aircraft Certification Office, telephone (516) 228-7300, mailing address: 1600 Stewart Avenue, Suite 410, Westbury, New York 11590. This first contact should take place within 24 hours after it has been determined that the failure required to be reported has occurred.

FAA Form 8010-4, Malfunction or Defect Report, or any other appropriate format is acceptable in transmitting the required details.

Anthony Socias

Manager,

New York Aircraft Certification Office

MODIFICATION APPROVAL REQUEST APPLICATION FORM MOD698, Rev. 1									
1.	NAME AND ADDRESS OF APPLICANT:	2. IDENTIFICATION OF PRODUCT							
	AERO Design Ltd. 2013 - 39th Avenue NE Calgary, Alberta, Canada	MAKE: Bell Helicopter (Textron)			MODEL: 206L series, 407				
	T2E 6R7 ALL CORRESPONDANCE TO:	SERIAL No.:			REGISTRATION:				
	AERO Design Ltd. 2013 - 39th Avenue NE	All eligible			All eligible				
	Calgary, Alberta T2E 6R7	7 Gg.2.			, Gg.2.6				
3.	REQUEST FOR:								
	A. SUPPLEMENTAL TYPE CERTIFICATE (STC)								
	B. STC/STA REVISION	STC/STA N	lo.						
	C. LIMITED SUPPLEMENTAL TYPE CERTIFICATE (LSTC)								
	D. LIMITED STC/STA REVISION	LSTC/LSTA	No.						
	E. F.A.A. SUPPLEMENTAL TYPE CERTIFICATE								
	F. F.A.A. STC REVISION	STC No. SF	STC No. SR02253NY			> based on Iss 8			
	G. FAMILIARIZATION OF F.A.A. STC	STC No.			Is	58			
	H. REPAIR DESIGN APPROVAL (RDC)								
	I. PARTS DESIGN APPROVAL (PDA)								
4.	TITLE OF MODIFICATION OR REPAIR: Quick Release Cargo Basket Installation								
5.	BRIEF DESCRIPTION OF MODIFICATION OR REPAIR:								
	Installation of Cargo Basket on side of the helicopter. The mounti Support beams for the basket are attached to the fittings. The Ca This revision incorporates all design changes and revised substant	rgo Basket can be inst	alled and removed	from the	e beams withou	ut tools.			
6.	APPLICABLE TYPE APPROVAL (TA) OR TYPE CERTIFICATE	(TC) DOCUMENTS:							
	A. TA NO. H-92 B. TC No. H2SW	C. OTHER							
7.	PROPOSED BASIS OF APPROVAL:								
	A. SAME AS TA 🛛 B. SAME AS TC 🔲	C. OTHER	☐ (Please sp	ecify)					
8.	DOCUMENTATION CHECKLIST		REQUI	RED	FOR DOT USE ONLY				
					RECEIVED				
			YES	NO	YES	NO	DATE		
	COMPLIANCE PROGRAM		Х		1		1		
	MASTER DRAWING LIST		Х		1				
	FLIGHT MANUAL SUPPLEMENT		Х		1				
	MAINTENANCE MANUAL SUPPLEMENT			X					
	INSTRUCTIONS FOR CONTINUING AIRWORTHINESS		Х		1				
_	ENGINEERING REPORTS		X						
	DESIGN DRAWINGS			X					
	MANUFACTURE DRAWINGS & INSTALLATION INSTRUCTION:	S 	X						
	ELECTRICAL LOAD ANALYSIS			X					
	DRAFT STC, LSTC OR RDA			X	,				
	WEIGHT AND MOMENT CHANGE		X X		/ / /				
	FLIGHT TEST DATA		X						
9.	OTHER (Specify) APPLICANT'S REMARKS:			X					
	STC based on Transport Canada STC # SH00-48 issue 7	and in Connellian Avietian F	Pegulations (CAR) Se	option 104	Lagran to roim	hura Trans	nort Canada		
10.	In addition to the payment of Aircraft Certification approval fees as prescribed in Canadian Aviation Regulations (CAR) Section 104, I agree to reimburse Transport Canada incremental expenses as in Aviation Regulation Directive No. 3, or equivalent, as applicable. For further details governing cost recovery, refer to AMA 513/4. AERO Design Ltd.								
	PER D	Consultant			22 October, 2010				
	SIGNATURE OF APPLICANTS	TITLE				DATE			
11.	danl				, .	1			
	SIGNATURE OF REGIONAL ENGINEER IN TEA				/ /	DATE	10/0 -		

United States of America

Department of Transportation -- Federal Abiation Administration

Supplemental Type Certificate

IMPORT

Number SR02253NY

This certificate issued to

Aero Design Ltd.

2013-39th Avenue NE Calgary, Alberta, T2E 6R7

Canada

certifies that the change in the type design for the following product with the limitations and conditions therefor as specified hereon meets the airworthiness requirements of Part 27 of the Federal Aviation Regulations.

Original Product -- Type Certificate Number: H2SW

Make: Bell Helicopter Textron Canada Limited

Model: 206L, 206L-1, 206L-3, 206L-4, 407

Description of Type Design Change:

The installation of Cargo Basket, External Attachment Provisions, Auxiliary Step and Quick Release Step for:

I. Bell 407 Only

407 Configuration A-External Attachment Provisions Only: Installation of External Attachment Provisions to be done
in accordance with Aero Design Ltd. Document Control List, DCL 700, Revision 1 dated September 28, 2007, or later
Transport Canada approved revision.

(Description of Type Design Change continued on page 2 of 4)

Limitations and Conditions:

I. Bell 407 Only

1. 407 Configuration A-External Attachment Provisions Only:

a. Operation must be in accordance with Aero Design Ltd. Flight Manual Supplement, FMS 700.91, Revision 0 dated May 4, 2006, Transport Canada approved June 9, 2006, or later Transport Canada approved revision.

b. Instructions for Continued Airworthiness described in Aero Design Ltd. Instructions for Continued Airworthiness ICA 700.90, Revision 0 dated May 3, 2006, Transport Canada accepted June 9, 2006, or later Transport Canada accepted revisions are required for this installation.

c. External Attachment Provisions installed in accordance with DCL700 may remain installed if the basket installation is removed.

(Limitations and Conditions continued on page 3 of 4)

This certificate and the supporting data which is the basis for approval shall remain in effect until surrendered, suspended, revoked or a termination date is otherwise established by the Administrator of the Federal Aviation Administration.

Date of application: August 9, 2004

Date reissued:

Date of issuance:

April 19, 2006

Date amended: April 1, 2011

TOMINISTRATION

V/ W/2

By direction of the Administrator

(Signature)

Anthony Socias

New York Aircraft Certification Office

(Title)

Description of Type Design Change (Continued).

Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both.

United States of America

Department of Transportation -- Federal Abiation Administration

Supplemental Type Certificate

(Continuation Sheet)

Number SR02253NY
Date of Amendment: April 1, 2011

I. Bell 407 Only (Continued)

- 2. 407 Configuration B-External Cargo Basket Installation (Low Mounted Fixed): Installation of Configuration A, External Attachment Provisions is a prerequisite for Configuration B, External Cargo Basket Installation. Installation of External Cargo Basket is to be completed in accordance with Transport Canada approved, Aero Design Ltd. Document Control List DCL 606, Revision 3, dated September 28, 2007, or later Transport Canada approved revision. High skid gear is required for the basket installation. Placard is required on the basket lid.
- 3. 407 Configuration C-External Cargo Basket Installation (High Mounted Fixed): Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration C, External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 606-1, Revision 1, dated December 13, 2006, or later Transport Canada approved revision. Approved emergency exit "push out " windows or an approved sliding door are required on the side of the helicopter that the basket is installed on if passengers are to be carried. Placard required on the basket lid.
- 4. 407 Configuration D-External Cargo Basket Installation (Low Mounted Quick Release): Installation of Configuration A, External Attachment Provisions is a prerequisite for Configuration D, External Cargo Basket Installation. Installation of External Cargo Basket is to be completed in accordance with Transport Canada approved, Aero Design Ltd. Document Control List DCL 701, Revision 3, dated December 2, 2008, or later Transport Canada approved revision. High skid gear is required for the basket installation. Placard is required on the basket lid.
- 5. 407 Configuration E-External Cargo Basket Installation (High Mounted Quick Release): Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration E, External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 766-1, Revision 1, dated September 23, 2008, or later Transport Canada approved revision. Approved emergency exit "push out " windows or an approved sliding door are required on the side of the helicopter that the basket is installed on if passengers are to be carried. Placard required on the basket lid.

II. Bell 206L, L-1, L-3, L-4 Only

- 206L Series Configuration A-External Attachment Provisions Only: Installation of External Attachment Provisions to be done in accordance with Transport Canada approved, Aero Design Ltd. Document Control List, DCL 493, Revision 6 dated May 10, 2006, or later Transport Canada approved revision.
- 2. 206L Series Configuration B-External Cargo Basket Installation (Low Mounted Fixed): Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration B, External Cargo Basket installation. Installation of the cargo basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 492, Revision 6, dated September 28, 2007, or later Transport Canada approved revision. High skid gear is required for the basket installation. Placard is required on the basket lid.
- 206L Series Configuration C-External Cargo Basket Installation (Low Mounted Quick Release): Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration C, External Cargo Basket installation. Installation of the cargo basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 702, Revision 2, dated December 2, 2008, or later Transport Canada approved revision. High skid gear is required for the basket installation. Placard is required on the basket lid.
- 4. 206L Series Configuration D-External Cargo Basket Installation (High Mounted Quick Release): Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration D, External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 766-1, Revision 1, dated September 23, 2008, or later Transport Canada approved revision. Approved emergency exit "push out" windows or an approved sliding door are required on the side of the helicopter that the basket is installed on if passengers are to be carried. Placard required on the basket lid.

Department of Transportation -- Federal Abiation Administration

Supplemental Type Certificate

(Continuation Sheet)

Number SR02253NY

Date of Amendment: April 1, 2011

Description of Type Design Change (Continued).

III. All Models (Bell 206L series and 407)

- 1. **Auxiliary Step Installation:** Installation of the Auxiliary Step is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 623, Revision 3, dated November 17, 2010, or later Transport Canada approved revision.
- 2. Cargo Basket Modifications: Modifications to the cargo basket configurations are eligible in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 704, Revision 6, dated April 29, 2010, or later Transport Canada approved revision. Eligibility limitations are noted on the drawings.
- 3. Quick Release Step Installation: Installation of the Low Mounted Quick Release Basket (407-ConfigurationD; 206L-Configuration C) is required prior to the installation of the Quick Release Step. Installation of the Quick Release Step is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 800-2, Revision 0, dated December 2, 2008, or later Transport Canada approved revision.

Limitations and Conditions (Continued).

- I. Bell 407 Only (Continued)
 - 2. 407 Configuration B-External Cargo Basket Installation (Low Mounted Fixed):
 - a. Operation must be in accordance with Transport Canada approved, Aero Design Ltd. Flight Manual Supplement, FMS 606.01, Revision 2 dated September 28, 2007, or later Transport Canada approved revision.
 - b. Instructions for Continued Airworthiness described in Aero Design Ltd. Instructions for Continued Airworthiness ICA 492.90, Revision 1 dated September 28, 2007, Transport Canada accepted January 30, 2008 or later Transport Canada accepted revisions are required for this installation.

3. 407 Configuration C-External Cargo Basket Installation (High Mounted Fixed):

- a. Operation must be in accordance with Transport Canada approved, Aero Design Ltd. Flight Manual Supplement, FMS 606.01, Revision 2 dated September 28, 2007, or later Transport Canada approved revision.
- Aero Design Ltd. Maintenance Instructions MI 606.01, Revision 2 dated July 19, 2004, Transport Canada accepted July 20, 2004 or later Transport Canada accepted revisions are required for this installation.

4. 407 Configuration D-External Cargo Basket Installation (Low Mounted Quick Release):

- a. Operation must be in accordance with Aero Design Ltd. Flight Manual Supplement, FMS 701.90, Revision 2 dated July 17, 2008, Transport Canada approved April 7, 2009, or later Transport Canada approved revision.
- b. Instructions for Continued Airworthiness described in Aero Design Ltd. Instructions for Continued Airworthiness ICA 698.90, Revision 1 dated November 9, 2006, Transport Canada accepted January 30, 2008 or later Transport Canada accepted revisions are required for this installation.

5. 407 Configuration E-External Cargo Basket Installation (High Mounted Quick Release):

- a. Operation must be in accordance with Aero Design Ltd. Flight Manual Supplement, FMS 766.91, Revision 0 dated October 30, 2007, Transport Canada approved January 30, 2008, or later Transport Canada approved revision.
- b. Instructions for Continued Airworthiness described in Aero Design Ltd. Instructions for Continued Airworthiness ICA 766.90, Revision 0 dated September 26, 2007, Transport Canada accepted January 30, 2008 or later Transport Canada accepted revisions are required for this installation.

II. Bell 206L, L-1, L-3, L-4 Only

1. 206L Series Configuration A-External Attachment Provisions Only:

- a. Operation must be in accordance with Aero Design Ltd. Flight Manual Supplement, FMS 493.01 Revision 0 dated May 19, 2002, Transport Canada approved June 27, 2002 or later Transport Canada approved revision.
- b. Instructions for Continued Airworthiness described in AERO Design Ltd. Instructions for Continued Airworthiness ICA 493.90, Revision 0 dated May 4, 2006, Transport Canada accepted June 9, 2006 or later Transport Canada accepted revisions are required for this installation.
- c. External Attachment Provisions installed in accordance with DCL 493 may remain installed if the basket installation is removed.

United States of America

Department of Transportation -- Federal Abiation Administration

Supplemental Type Certificate

(Continuation Sheet)

Number SR02253NY

Date of Amendment: April 1, 2011

Limitations and Conditions (Continued).

2. 206L Series Configuration B-External Cargo Basket Installation (Low Mounted Fixed):

- a. Operation must be in accordance with Transport Canada approved, Aero Design Ltd. Flight Manual Supplement, FMS 492.01 Revision 2 dated September 28, 2007, or later Transport Canada approved revision.
- b. Instructions for Continued Airworthiness described in AERO Design Ltd. Instructions for Continued Airworthiness ICA 492.90, Revision 1 dated September 28, 2007, Transport Canada accepted January 30, 2008 or later Transport Canada accepted revisions are required for this installation.

3. 206L Series Configuration C-External Cargo Basket Installation (Low Mounted Quick Release):

- a. Operation must be in accordance with Aero Design Ltd. Flight Manual Supplement, FMS 702.90 Revision 2 dated July 17, 2008, Transport Canada approved April 7, 2009 or later Transport Canada approved revision.
- b. Instructions for Continued Airworthiness described in AERO Design Ltd. Instructions for Continued Airworthiness ICA 698.90, Revision 1 dated November 9, 2006, Transport Canada accepted January 30, 2008 or later Transport Canada accepted revisions are required for this installation.

206L Series Configuration D-External Cargo Basket Installation (High Mounted Quick Release):

- a. Operation must be in accordance with Aero Design Ltd. Flight Manual Supplement, FMS 766.92 Revision 0 dated October 30, 2007, Transport Canada approved January 30, 2008 or later Transport Canada approved revision.
- b. Instructions for Continued Airworthiness described in AERO Design Ltd. Instructions for Continued Airworthiness ICA 766.90, Revision 0 dated September 26, 2007, Transport Canada accepted January 30, 2008 or later Transport Canada accepted revisions are required for this installation.
- III. All Models (Bell 206L series and 407)
 - 1. Auxiliary Step Installation:
 - a. The auxiliary step is optional and is not required with installations listed above.
 - b. Auxiliary Step installed in accordance with DCL 623 may remain installed if the basket installation is removed.
 - c. Instructions for Continued Airworthiness described in AERO Design Ltd. Instructions for Continued Airworthiness ICA 623.91, Revision 0 dated May 5, 2010, Transport Canada accepted November 17, 2010 or later Transport Canada accepted revisions are required for this installation.
 - Cargo Basket Modifications: Eligibility limitations are noted on the drawings contained in AERO Design Ltd., Document Control List DCL 704, Revision 6, dated April 29, 2010, or later Transport Canada approved revision.
 - 3. Ouick Release Step Installation:
 - a. The Quick Release Step is optional and is not required with the Quick Release Cargo Basket Installation.
 - b. The Quick Release Step may be stowed in the inboard position on the mounting provisions when the Quick Release Cargo Basket is installed.
 - c. Instructions for Continued Airworthiness described in AERO Design Ltd. Instructions for Continued Airworthiness ICA 800.90, Revision 2 dated December 2, 2008, Transport Canada accepted April 7, 2009 or later Transport Canada accepted revisions are required for this installation.
- IV. The Installer must determine whether this design change is compatible with previously approved modifications.
- V. If the holder agrees to permit another person to use the certificate to alter a product, the holder must give the other person written evidence of that permission.

-----END------END------

Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both.

AERO DESIGN LTD.

2013 – 39th Ave N. E., Calgary, Alberta, T2E 6R7

www.aerodesign.ca Phone: (403) 250-8027, Fax: (403) 250-8333

FAX COVER SHEET

DATE: 13 APRIL 2011

TIME:

FA. 35D

TO: DEAN ELLIOT

PHONE:

- 1517

FAX:

(250) 963-9832

FROM:

Steven Fahey, CET

Aero Design Ltd.

PHONE:

403-250-8027

FAX:

403-250-8333

Number of pages including cover sheet: 5

RE: REJISED STC SR 02253NY

DEAN,
WE JUST GOT AN ADVANCE COPY OF
THE STC THROUGH TRANSPORT & FAA.

TED SAYS YOU'D APPRECIATE A COPY ASAP.

I WILL SCAN COPIES OF IT IN THE

FUTURE WHEN WE HAVE THE ORIGINALS ON
PAPER. HOPE IT'S HEZPFUL

STEVE

AERO DESIGN LTD.

2013 – 39th Ave N. E., Calgary, Alberta, T2E 6R7

www.aerodesign.ca Phone: (403) 250-8027, Fax: (403) 250-8333

FAX COVER SHEET

DATE: 13 APRIL 2011

TIME 70:30

TO: LARRY LAKE HILLSBORG

PHONE: 503 - 648 - 2831

FAX:

-1886

FROM:

Steven Fahey, CET

Aero Design Ltd.

PHONE:

403-250-8027

FAX:

403-250-8333

Number of pages including cover sheet: 5

RE: REVISED STC COPY SRO2253NY

LARRY,

OUR STC IS NOW UPDATED WITH ALL CURRENT FEATURES AND OPTIONS, FAX-OF-A-FAX-OF-A-FAX-HOPE IT IS EASY ENDUGH TO READ,

STEVE

P.S. COPIES WILL COME IN THE MAIL
IN DUE TIME. WE ALWAYS SCAN
THEM & MAKE AVAILABLE ON CUR
WEBSITE,

DEAN - 150.963 9834 ELLLOT P. 6. Lellitta VIN. COM. United States of America

Department of Transportation -- Federal Abiation Administration

Supplemental Type Certificate

Number SR02253NY

This certificate issued to

Aero Design Ltd. 2013-39th Avenue NE Calgary, Alberta, T2E 6R7 Canada

certifies that the change in the type design for the following product with the limitations and conditions. Therefor as specified hereon meets the airmorthiness requirements of Part 27 of the Federal Aviation. Begulations.

Original Product - Type Certificate Number: H2SW

Make: Bell Helicopter Textron Canada Limited

Merelol. 206L, 206L-1, 206L-3, 206L-4, 407

Description of Type Design Change:

The installation of Cargo Basket, External Attachment Provisions, Auxiliary Step and Quick Release Step for:

- I. Bell 407 Only
 - 407 Configuration A-External Attachment Provisions Only: Installation of External Attachment Provisions to be done
 in accordance with Aero Design Ltd. Document Control List, DCL 700, Revision 1 dated September 28, 2007, or later
 Transport Canada approved revision.

(Description of Type Design Change continued on page 2 of 4)

Bimitations und Conditions:

- I. Bell 407 Only
 - I. 407 Configuration A-External Attachment Provisions Only:
 - Operation must be in accordance with Aero Design Ltd. Flight Manual Supplement, FMS 700.91, Revision 0 dated May 4, 2006, Transport Canada approved June 9, 2006, or later Transport Canada approved revision.
 - b. Instructions for Continued Airworthiness described in Aero Design Ltd. Instructions for Continued Airworthiness ICA 700.90, Revision 0 dated May 3, 2006, Transport Canada accepted June 9, 2006, or later Transport Canada accepted revisions are required for this installation.
 - External Attachment Provisions installed in accordance with DCL700 may remain installed if the basket installation is removed.

(Limitations and Conditions continued on page 3 of 4)

This artificate and the supporting data which is the basis for approval shall remain in offeet until surrendered, suspended, revoked or a termination date is otherwise established by the Administrator of the Federal Acciation Sodministrators

Date of application: August 9, 2004

Date reissued:

Date of issuance:

April 19, 2006

Date amended: April 1, 2011

By direction of the Administrator

1

Anthony Socias

Manager

New York Aircraft Certification Office

(Title)

280-469-282

Description of Type Design Change (Continued).

Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both.

FAA Form 8110-2(10-58) Page 1 of 4

This certificate may be transferred in accordance with FAR 21.47.

United States of America

Department of Transportation — Federal Abiation Administration

Supplemental Type Certificate

(Continuation Sheet)

Number SR02253NY

Date of Amendment: April 1, 2011

Beli 407 Only (Continued)

- 2. 407 Configuration B-External Cargo Basket Installation (Low Mounted Fixed): Installation of Configuration A, External Attachment Provisions is a prerequisite for Configuration B, External Cargo Basket Installation. Installation of External Cargo Basket is to be completed in accordance with Transport Canada approved, Aero Design Ltd. Document Control List DCL 606, Revision 3, dated September 28, 2007, or later Transport Canada approved revision. High skid gear is required for the basket installation. Placard is required on the basket lid.
- 3. 467 Configuration C-External Cargo Basket Installation (High Mounted Fixed): Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration C, External Cargo Basket Installation, Installation of the External Cargo Basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 606-1, Revision 1, dated December 13, 2006, or later Transport Canada approved revision. Approved emergency exit "push out " windows or an approved sliding door are required on the side of the helicopter that the basket is installed on if passengers are to be carried. Placard required on the basket lid.
- 4. 407 Configuration D-External Cargo Basket Installation (Low Mounted Quick Release): Installation of Configuration A, External Attachment Provisions is a prerequisite for Configuration D, External Cargo Basket Installation. Installation of External Cargo Basket is to be completed in accordance with Transport Canada approved, Aero Design Ltd. Document Control List DCL 701, Revision 3, dated December 2, 2008, or later Transport Canada approved revision. High skid gear is required for the basket installation. Placard is required on the basket lid.
- 5. 407 Configuration E-External Cargo Basket Installation (High Mounted Quick Release): Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration E, External Cargo Basket Installation Installation of the External Cargo Basket is to be completed in accordance with Transport Canada approved, AERO Designa Ltd., Document Control List DCL 766-1, Revision I, dated September 23, 2008, or later Transport Canada approved revision. Approved emergency exit "push out " windows or an approved sliding door are required on the side of the helicopter that the basket is installed on if passengers are to be carried. Placard required on the basket lid.

II. Bell 206L, L-1, L-3, L-4 Only

- 286L Series Configuration A-External Attachment Provisions Only: Installation of External Attachment Provisions to be done in accordance with Transport Canada approved, Acro Design Ltd. Document Control List, DCL 493, Revision 6 dated May 10, 2006, or later Transport Canada approved revision.
- 2. 206L Series Configuration B-External Cargo Basket Installation (Low Mounted Fixed): Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration B, External Cargo Basket installation. Installation of the cargo basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 492, Revision 6, dated September 28, 2007, or later Transport Canada approved revision. High skid gear is required for the basket installation. Placard is required on the basket lid.
- 3. 206L Series Configuration C-External Cargo Basket Installation (Low Mounted Quick Release): Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration C, External Cargo Basket installation. Installation of the cargo basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 702, Revision 2, dated December 2, 2008, or later Transport Canada approved revision. High skid gcar is required for the basket installation. Placard is required on the basket lid.
- 4. 206L Series Configuration D-External Cargo Basket Installation (High Mounted Quick Release): Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration D, External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 766-1, Revision 1, dated September 23, 2008, or later Transport Canada approved revision. Approved emergency exit "push out" windows or an approved sliding door are required on the side of the helicopter that the basket is installed on if passengers are to be carried. Placard required on the basket lid.

Any elteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both.

United States of America

Bepartment of Transportation - Federal Abiation Administration

Supplemental Type Certificate

(Continuation Sheet)

Number SR02253NY

Date of Amendment: April 1, 2011

Description of Type Design Change (Continued).

III. All Models (Bell 206L series and 407)

- Auxiliary Step Installation: Installation of the Auxiliary Step is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 623, Revision 3, dated November 17, 2010, or later Transport Canada approved revision.
- Cargo Basket Modifications: Modifications to the cargo basket configurations are eligible in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 704, Revision 6, dated April 29, 2010, or later Transport Canada approved revision. Eligibility limitations are noted on the drawings.
- Quick Release Step Installation: Installation of the Low Mounted Quick Release Basket (407-ConfigurationD; 206L-Configuration C) is required prior to the installation of the Quick Release Step. Installation of the Quick Release Step is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 800-2, Revision 0, dated December 2, 2008, or later Transport Canada approved revision.

Limitations and Conditions (Continued).

Bell 407 Only (Continued)

407 Configuration B-External Cargo Basket Installation (Low Mounted Fixed):

- a. Operation must be in accordance with Transport Canada approved, Aero Design Ltd. Flight Manual Supplement, FMS 606.01, Revision 2 dated September 28, 2007, or later Transport Canada approved revision.
- b. Instructions for Continued Airworthiness described in Aero Design Ltd. Instructions for Continued Airworthiness ICA 492.90, Revision 1 dated September 28, 2007, Transport Canada accepted January 30, 2008 or later Transport Canada accepted revisions are required for this installation.

407 Configuration C-External Cargo Basket Installation (High Mounted Fixed):

- a. Operation must be in accordance with Transport Canada approved, Aero Design Ltd. Flight Manual Supplement, FMS 606.01, Revision 2 dated September 28, 2007, or later Transport Canada approved revision.
- Aero Design Ltd. Maintenance Instructions MI 606.01, Revision 2 dated July 19, 2004, Transport Canada accepted July 20, 2004 or later Transport Canada accepted revisions are required for this installation.

4. 407 Configuration D-External Cargo Basket Installation (Low Mounted Quick Release):

- a. Operation must be in accordance with Aero Design Ltd. Flight Manual Supplement, FM\$ 701.90, Revision 2 dated July 17, 2008, Transport Canada approved April 7, 2009, or later Transport Canada approved revision.
- b. Instructions for Continued Airworthiness described in Aero Design Ltd. Instructions for Continued Airworthiness ICA 698.90, Revision 1 dated November 9, 2006, Transport Canada accepted January 30, 2008 or later Transport Canada accepted revisions are required for this installation.

5. 407 Configuration E-External Cargo Basket Installation (High Mounted Quick Release):

- a. Operation must be in accordance with Aero Design Ltd. Flight Manual Supplement, FMS 766.91, Revision 0 dated October 30, 2007, Transport Canada approved January 30, 2008, or later Transport Canada approved revision.
- b. Instructions for Continued Airworthiness described in Aero Design Ltd. Instructions for Continued Airworthiness ICA 766.90, Revision 0 dated September 26, 2007, Transport Canada accepted January 30, 2008 or later Transport Canada accepted revisions are required for this installation.

H. Bell 206L, L-1, L-3, L-4 Only

1. 206L Series Configuration A-External Attachment Provisions Only:

- a. Operation must be in accordance with Aero Design Ltd. Flight Manual Supplement, FMS 493.01 Revision 0 dated May 19, 2002, Transport Canada approved June 27, 2002 or later Transport Canada approved revision.
- b. Instructions for Continued Airworthiness described in AERO Design Ltd. Instructions for Continued Airworthiness ICA 493.90, Revision 0 dated May 4, 2006, Transport Canada accepted June 9, 2006 or later Transport Canada accepted revisions are required for this installation.
- External Attachment Provisions installed in accordance with DCL 493 may remain installed if the basket installation is removed.

Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both.

FAA FORM H110-2-1(10-69)

Fage 3 of 4

This cortificate may be transferred in accordance with PAR 21.47.

United States of America

Department of Transportation -- Nederal Abiation Administration

Supplemental Type Certificate

(Continuation Sheet)

Number SR02253NY

Date of Amendment: April 1, 2011

Limitations and Conditions (Continued).

- 206L Series Configuration B-External Cargo Basket Installation (Low Mounted Fixed):
 - a. Operation must be in accordance with Transport Canada approved, Aero Design Ltd. Flight Manual Supplement, FMS 492.01 Revision 2 dated September 28, 2007, or later Transport Canada approved revision.
 - b. Instructions for Continued Airworthiness described in AERO Design Ltd. Instructions for Continued Airworthiness ICA 492.90, Revision I dated September 28, 2007, Transport Canada accepted January 30, 2008 or later Transport Canada accepted revisions are required for this installation.
- 206L Series Configuration C-External Cargo Basket Installation (Low Mounted Quick Release):
 - a. Operation must be in accordance with Aero Design Ltd. Flight Manual Supplement, FMS 702.90 Revision 2 dated July 17, 2008, Transport Canada approved April 7, 2009 or later Transport Canada approved revision.
 - b. Instructions for Continued Airworthiness described in AERO Design Ltd. Instructions for Continued Airworthiness ICA 698.90, Revision 1 dated November 9, 2006, Transport Canada accepted January 30, 2008 or later Transport Canada accepted revisions are required for this installation.
- 4. 206L Series Configuration D-External Cargo Basket Installation (High Mounted Quick Release);
 - a. Operation must be in accordance with Acro Design Ltd. Flight Manual Supplement, FMS 766.92 Revision 0 dated October 30, 2007, Transport Canada approved January 30, 2008 or later Transport Canada approved revision.
 - b. Instructions for Continued Airworthiness described in AERO Design Ltd. Instructions for Continued Airworthiness ICA 766.90, Revision 0 dated September 26, 2007, Transport Canada accepted January 30, 2008 or later Transport Canada accepted revisions are required for this installation.
- III. All Models (Bell 206L series and 407)
 - 1. Auxiliary Step Installation:
 - a. The auxiliary step is optional and is not required with installations listed above.
 - b. Auxiliary Step installed in accordance with DCL 623 may remain installed if the basket installation is removed.
 - c. Instructions for Continued Airworthiness described in AERO Design Ltd. Instructions for Continued Airworthiness ICA 623.91, Revision 0 dated May 5, 2010, Transport Canada accepted November 17, 2010 or later Transport Canada accepted revisions are required for this installation.
 - Cargo Basket Modifications: Eligibility limitations are noted on the drawings contained in AERO Design Ltd., Document Control List DCL 704, Revision 6, dated April 29, 2010, or later Transport Canada approved revision.
 - 3. Quick Release Step Installation:
 - a. The Quick Release Step is optional and is not required with the Quick Release Cargo Basket Installation.
 - b. The Quick Release Step may be stowed in the inboard position on the mounting provisions when the Quick Release Cargo Basket is installed.
 - c. Instructions for Continued Airworthiness described in AERO Design Ltd. Instructions for Continued Airworthiness ICA 800.90, Revision 2 dated December 2, 2008, Transport Canada accepted April 7, 2009 or later Transport Canada accepted revisions are required for this installation.
- IV. The Installer must determine whether this design change is compatible with previously approved modifications.
- V. If the holder agrees to permit another person to use the certificate to alter a product, the holder must give the other person written evidence of that permission.

-----END-----

Any alteration of this contificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both.

FAA Form 6110-2-1(10-69)

Page 4 of 4

This certificate may be transferred in accordance with FAR 21.47.

NEW ENGLAND REGION NEW YORK AIRCRAFT CERTIFICATION OFFICE 1600 STEWART AVENUE, SUITE 410 WESTBURY, NEW YORK 11590

INFORMATION CONCERNING YOUR RESPONSIBILITY AS HOLDER OF A SUPPLEMENTAL TYPE CERTIFICATE ISSUED TO A CANADIAN APPLICANT

This STC is official indications of FAA approval of your installation and may be used to authorize identical installation on other aircraft of the same model, subject to the limitation noted in the STC. It may be transferred, or otherwise made available to another party by means of a licensee arrangement; however, you are requested to advise this office when you transfer or grant licensee rights to the STC in order that we may take the necessary recording or reissuance action.

If you plan to manufacture and sell parts for installation on type certificated aircraft, please review FAR 21.502, which is applicable to parts imported into the U.S.

A copy of the STC and required documents should accompany each kit and installation. Also, your attention is directed to the limitations and conditions specified in the STC.

As recipient of this approval, except as provided in FAR21.3(d), you are required to report any failure, malfunction, or defect in any product or part manufactured by you that you have determined has resulted or could result in any of the occurrences listed in FAR 21.3(c).

The report should be communicated initially by telephone and subsequently in writing to the Manager, New York Aircraft Certification Office, telephone (516) 228-7300, mailing address: 1600 Stewart Avenue, Suite 410, Westbury, New York 11590. This first contact should take place within 24 hours after it has been determined that the failure required to be reported has occurred.

FAA Form 8010-4, Malfunction or Defect Report, or any other appropriate format is acceptable in transmitting the required details.

Anthony Socias

Manager,

New York Aircraft Certification Office

VIH PRINCE GEORGE DEAN (250) 963-1517 HILLSBORO FAX (503) 648-1886 LARRY LAKE PAN (503) 948-2831 CHRES

Jeff Clarke

From: Rafael Caceres [rcaceresr@dgac.cl]

Sent: July 27, 2010 11:13 AM

To: Jeff Clarke

Subject: Re: Bell 407 Cargo Basket Documents

Dear Jeff.

Many thanks for your information.

Best regard.
Rafael Caceres
Direccion General de Aeronautica Civil Chile
Subdepartamento de Aeronavegabilidad
Seccion Ingenieria
Avenida Miguel Claro 1314
Providencia Santiago Chiel

---- Original Message -----

From: Jeff Clarke
To: rcaceresr@dgac.cl

Sent: Tuesday, July 27, 2010 1:04 PM **Subject:** Bell 407 Cargo Basket Documents

Mr. Caceres,

Is the information you require for Bell 407, registration CC-ABK?
The configurations supplied for CC-ABK is Bell 407 Configuration A – External Attachment Provisions and Bell 407 Configuration D – Low Mounted Quick Release Basket FMS606.01, Rev. 2 does not apply to the configurations supplied for CC-ABK.

Attached is SI 698.91 as requested.

If you have any further questions please contact me.

Regards,

Jeff Clarke, CET

AERO Design Ltd. 2013 39th Avneue NE Calgary, Alberta, Canada T2E 6R7

Phone: 403.250.8027 Fax: 403.250.8333

Sent: Tue

Priority: Normal

From: "Rafael Caceres" < rcaceresr@dgac.cl>

To: <info@aerodesign.ca>

Subject: Website Visitor Inquiry

Dear Sir

Please remit information Relative with Installation "External Cargo Basket" (Low mounted Fixed) for Helicopter model 407, reference in FMS 606.01, rev.2 dated 28 Sept.2007.

Best regadr Rafael Caceres CAA- Direccion General de Aeronautica Civil Chile Subdepartamento de Aeronavegabilidad Seccion Ingenieria Avenida Miguel Clarop 1314 Providencia Santiago Chile Fono 562-4392654

From: "Rafael Caceres" < rcaceresr@dgac.cl> - Website Visitor Inquiry

From: "Rafael Caceres" < rcaceresr@dgac.cl>

To: <info@aerodesign.ca>

Subject: Fw: Website Visitor Inquiry

Sent: Tue Priority: Normal

Dear Sir Please remit Service Instructions number 698-91.-

Best regadr Rafael Caceres CAA- Direccion General de Aeronautica Civil Chile Subdepartamento de Aeronavegabilidad Seccion Ingenieria Avenida Miguel Clarop 1314 Providencia Santiago Chile Fono 562-4392654

From: "Rafael Caceres" < rcaceresr@dgac.cl> - Fw: Website Visitor Inquiry

Steven Fahey

From:

"Staal, Jack" <STAALJ@tc.gc.ca>

To:

<steve@aerodesign.ca>; <ted@aerodesign.ca>

Sent:

Thursday, March 17, 2011 8:54 AM

Subject:

FW: Project SA6339NY-R, STCSR02253NY

FYI

If you need the MSI's I have them here.

Jack

From: Stephen.Kowalski@faa.gov [mailto:Stephen.Kowalski@faa.gov]

Sent: Thursday, March 17, 2011 10:09 AM

To: Staal, Jack

Subject: Fw: Project SA6339NY-R, STCSR02253NY

Jack: Please ask the applicant to mail me hard copies of the following:

Compliance Checklist(s)

Design Data, Master Document List(s) is sufficient

Flight Manual Supplements

ICA(s)

MSI 53(s)

I had most of this information, before the project was cancelled. Unfortunately the files were sent to the records center and cannot be easily accessed. Otherwise, the STC just needs to get the latest dates added and will be ready to go.

Thanks, Steve Kowalski, P.E. AVS Engineer Airframe FAA NYACO 1600 Stewart Avenue, Suite 410 Westbury, NY 11590 (516) 228-7327

---- Forwarded by Stephen Kowalski/AEA/FAA on 03/17/2011 10:50 AM -----

From:

Stephen Kowalski/AEA/FAA

To:

"Staal, Jack" <STAALJ@tc.gc.ca>

Date:

03/17/2011 09:31 AM

Subject:

Project SA6339NY-R, STCSR02253NY

[attachment "SR02253NY_AmendDraft.pdf" deleted by Stephen Kowalski/AEA/FAA]

Jack:

Ask the applicant to review this amendment draft. There's a lot going on in this STC, ask them to verify this is what they are looking for, 'should probably be separate STC's. Also, I eliminated the AML, all the models are on the same TCDS, so the AML is not appropriate for this case.

Steven Fahey

From:

"Steven Fahey" <steve@aerodesign.ca> "Jack Staal" <jack.staal@tc.gc.ca>

To: Sent:

Attach:

Monday, November 08, 2010 10:43 AM Application_TCCA_STC_Rev.pdf; Bell Cargo Basket Configuration Matrix.pdf Update to TCCA STC 00-48 (Cargo Baskets)

Subject:

Jack.

So as we discussed, since SH00-48 is going to be updated to Issue 8, it ought to have all of the up-todate revisions of documents shown. So here is an application form for that purpose.

I've attached a copy of the documents matrix; hope it helps. On the first page, I've noted at the bottom the documents that have later revisions than those shown on Issue 7.

Steven Fahey steve@aerodesign.ca Aero Design Ltd. 2013 - 39th Avenue NE Calgary, Alberta, Canada T2E 6R7

tel: (403) 250-8027 fax: (403) 250-8333 www.aerodesign.ca

Tel: 403-250-8027 Fax: 403-250-8333 www.aerodesign.ca

8 November, 2010

Transport Canada Aircraft Certification Division 11th Floor, Canada Place 9700 Jasper Avenue Edmonton, Alberta T5J 4E6

Attn: Jack Staal Your File: SH00-48

Our File: 698

Re: Revision to SH00-48

Jack,

Please find attached the following documents related to this project:

Modification Approval Request Application Form MOD698 Rev. 2

As we discussed earlier on the phone, since we are committed to using Issue 8 of our STC, we should make it reflect all of the most current documents and revisions thereof.

Since I provided you with a matrix of documents and their revision levels with the FAA applications, you may already have what you need to sort this out. If some questions remain, of course I'm here to assist.

Regards,

Steven Fahey, CET

Encl.

	MODIFICATION APPROV	AL R	EQUEST AP	PLICATI	ON FC	DRM .	MOD6	98, Rev. 1
1.	NAME AND ADDRESS OF APPLICANT:	2.	IDENTIFICATION	OF PRODUC	Т			
	AERO Design Ltd. 2013 - 39th Avenue NE Calgary, Alberta, Canada T2E 6R7	MAP B	E: ell Helicopter (1	extron)		DEL: 206L serie	s, 407	
	ALL CORRESPONDANCE TO: AERO Design Ltd. 2013 - 39th Avenue NE Calgary, Alberta T2E 6R7		RIAL No.: Il eligible			GISTRATIO		d V
3.	REQUEST FOR:							7
	A. SUPPLEMENTAL TYPE CERTIFICATE (STC)							
	B. STC/STA REVISION	\boxtimes	STC/STA No. S	H00-48				
	C. LIMITED SUPPLEMENTAL TYPE CERTIFICATE (LSTC)							
	D. LIMITED STC/STA REVISION		LSTC/LSTA No.					
	E. F.A.A. SUPPLEMENTAL TYPE CERTIFICATE							
	F. F.A.A. STC REVISION		STC No.					
	G. FAMILIARIZATION OF F.A.A. STC		STC No.					
	H. REPAIR DESIGN APPROVAL (RDC)							
	I. PARTS DESIGN APPROVAL (PDA)							
4.	TITLE OF MODIFICATION OR REPAIR:							
	Quick Release Cargo Basket Installation							
5.	BRIEF DESCRIPTION OF MODIFICATION OR REPAIR: Update approved data to most current revisions.							
6.	APPLICABLE TYPE APPROVAL (TA) OR TYPE CERTIFICATE	(TC) D	OCUMENTS:					
	A. TA NO. H-92 B. TC No. H2SW		C. OTHER		_			
7.	PROPOSED BASIS OF APPROVAL:							
	A. SAME AS TA 🛛 B. SAME AS TC 🗀		C. OTHER	(Please sp	ecify)			
8.				REQUI	RED	FOR	DOT USE	ONLY
	DOCUMENTATION CHECKLIST						RECEIVE	English and the second
_	20MSUANOS PROCESA			YES	NO	YES	NO	DATE
_	COMPLIANCE PROGRAM			X				
-	MASTER DRAWING LIST FLIGHT MANUAL SUPPLEMENT			X				
-	MAINTENANCE MANUAL SUPPLEMENT			Х	X			
-	INSTRUCTIONS FOR CONTINUING AIRWORTHINESS			×			assers.	
	ENGINEERING REPORTS			x				
-	DESIGN DRAWINGS				X		e de la constanta de la consta	
	MANUFACTURE DRAWINGS & INSTALLATION INSTRUCTION	 1S		X				
	ELECTRICAL LOAD ANALYSIS			125	X			
	DRAFT STC, LSTC OR RDA				X			
	WEIGHT AND MOMENT CHANGE			х				
	FLIGHT TEST DATA			Х				
	OTHER (Specify)				Х			
9.	APPLICANT'S REMARKS: STC based on Transport Canada STC # SH00-48 issue 7							
10.	incremental expenses as in Aviation Regulation Directive No. 3, or equival AERO Design Ltd.	lent, as a _l	oplicable. For further o	ations (CAR) Se details governing	ection 104, g cost reco	I agree to rein very, refer to A	AMA 513/4.	
	PER:		nsultant 				8 Novemb	oer, 2010 ———
11.	SIGNATURE OF APPLICANTS	TITLE	:				DATE	
	SIGNATURE OF REGIONAL ENGINEER						DATE	



Department of Transport

Supplemental Type Certificate

This approval is issued to:

Number: SH00-48

Issue No.:

Approval Date: December 08, 2000

Issue Date:

November 02, 2010

Aero Design Ltd.

2013 39th Avenue North East

Calgary, Alberta

Canada T2E 6R7

Responsible Office:

Prairie and Northern

Aircraft/Engine Type or Model:

BELL 206L, 206L-1, 206L-3, 206L-4, 407

Canadian Type Certificate or Equivalent:

BELL 206L,206L-1,206L-3,206L-4,407 H-92

Description of Type Design Change:

Installation of Cargo Basket / External Attachment Provisions/Auxiliary step./Quick Release Step

Installation/Operating Data, Required Equipment and Limitations:

Bell 407 only:

407 Configuration A - External Attachment Provisions Only:

Installation of the External Attachment Provisions is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 700, Revision 1, dated 28 September 2007, or later approved revision.

AERO Design Ltd., Instructions for Continued Airworthiness ICA 700.90, Revision 0, dated 20 April 2006, or later accepted revision, is required with this installation.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS700.91, Revision 0, dated 4 May 2006, or later approved revision, is required with this installation.

External Attachment Provisions installed in accordance with DCL700 may remain installed if the basket installation is removed.

Basis of Certification remains as defined in the applicable Type Certificate Data Sheets.

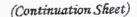
(continued on page 2)



Conditions: This approval is only applicable to the type/model of aeronautical product specified thereir. Prior to incorporating this modification, the installer shall establish that the interrelationship between this change and any other modification(s) incorporated will not adversely affect the airworthiness of the modified product.

> D.S. Austen For Minister of Transport

> > `anadä





Number: SH00-48 Issue 8

NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

<u>Bell 407 only: (Continued)</u> 407 Configuration B - External Cargo Basket (Low Mounted Fixed):

Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration B, External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL606, Revision 3, dated 28 September 2007, or later approved revision. High skid gear is required for the basket installation. Placard is required on the basket lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS 606.01, Revision 2, dated 28 September 2007, or later approved revision, is required with this installation.

AERO Design Ltd. Instructions for Continued Airworthiness ICA492.90, Revision 1, dated 28 September 2007, or later Transport Canada accepted revision, is required with this installation.

Basis of Certification remains as defined in the applicable Type Certificate Data Sheets.

407 Configuration C - External Cargo Basket Installation (High Mounted Fixed):

Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration C, External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL606-1, Revision 0, dated 1 February 2005, or later approved revision. Approved emergency exit "push out" windows or an approved sliding door are required on the side of the helicopter that the basket is installed on if passengers are to be carried. Placard required on the basket lid.

Transport Canada approved AERO Design Ltd., Flight Manual Supplement FMS 606.01 Revision 1 dated 01 February 2005, or later approved revision, is required with this installation.

(continued on page 3)



Number: SH00-48 Issue 8

NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

Bell 407 only: (Continued)
407 Configuration C - External Cargo Basket Installation (High Mounted Fixed):

AERO Design Ltd., Maintenance Instructions MI606.01 Revision 2, dated 19 July 2004, or later accepted revision, are required with this installation.

Basis of Certification remains as defined in the applicable Type Certificate Data Sheets.

407 Configuration D - External Cargo Basket Installation (Low Mounted Quick Release):

Installation of Configuration A, External Attachment Provisions, is a prerequisite for installation of Configuration D, External Cargo Basket Installation. Installation of the Cargo Basket is to be completed in accordance with Transport Canada approved AERO Design Ltd., Document Control List DCL 701, Revision 3, dated 2 December 2008, or later approved revision. High skid gear is required for the basket installation. Placard required on the lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS701.90, Revision 2, dated 17 July 2008, or later approved revision is required with this installation.

AERO Design Ltd., Instructions for Continued Airworthiness ICA 698.90, Revision 1, dated 9 November 2006, or later accepted revision is required with this installation.

Basis of Certification is defined by the applicable Type Certificate Data Sheets.

Bell 407 Configuration E - External Cargo Basket Installation High Mounted Quick Release

Installation of Configuration A, External Attachment Provisions, is a prerequisite for installation of Configuration E, External Cargo Basket Installation. Installation of the Cargo Basket is to be completed in accordance with Transport Canada approved AERO Design Ltd., Document Control List DCL 766-1, Revision 0, dated 26 September 2007, or later approved revision. Approved emergency exit "push out " windows or an approved sliding door are required on the side of the helicopter that the basket is installed on if passengers are to be carried. Placard required on the lid.

(continued on page 4)



Number: SH00-48 Issue 8

NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS766.91, Revision 0, dated 30 October 2007, or later approved revision, is required with this installation.

AERO Design Ltd., Instructions for Continued Airworthiness ICA 766.90, Revision 0, dated 26 September 2007, or later accepted revision, is required with this installation.

Basis of Certification is defined by the applicable Type Certificate Data Sheets.

Bell 206L, L-1, L-3, L-4 only:

206L Series Configuration A - External Attachment Provisions Only:

Installation of the External Attachment Provisions is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 493, Revision 6, dated 10 May 2006, or later approved revision.

Transport Canada approved AERO Design Ltd. Flight Manual Supplement FMS 493.01, Revision 0, dated 19 May 2002, or later approved revision, is required with this installation.

AERO Design Ltd. Instructions for Continued Airworthiness ICA 493.90, Revision 0, dated 4 May 2006, or later Transport Canada accepted revision, is required with this installation.

External Attachment Provisions installed in accordance with DCL493 may remain installed if the basket installation is removed.

Basis of Certification is as defined in the Type Certificate Data Sheets, plus FAR27 at amendment 27-24.

(continued on page 5)



Number: SH00-48 Issue 8

NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

206L Series Configuration B - External Cargo Basket (Low Mounted):

Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration B, External Cargo Basket installation. Installation of the cargo basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL492, Revision 6, dated 28 September 2007, or later approved revision. High skid gear is required for the basket installation. Placard is required on the basket lid.

Transport Canada approved AERO Design Ltd., Flight Manual Supplement FMS 492.01, Revision 2, dated 28 September 2007, or later approved revision, is required with this installation.

AERO Design Ltd., Instructions for Continued Airworthiness ICA492.90, Revision 1, dated 28 September 2007, or later Transport Canada accepted revision, is required with this installation.

Basis of Certification is as defined in the Type Certificate Data Sheets, plus FAR27 at amendment 27-24.

206L Series Configuration C - External Cargo Basket Installation (Low Mounted Quick Release):

Installation of Configuration A, External Attachment Provisions, is a prerequisite for installation of Configuration C, External Cargo Basket Installation. Installation of the Cargo Basket is to be completed in accordance with Transport Canada approved AERO Design Ltd., Document Control List DCL 702, Revision 2, dated 2 December 2008, or later approved revision. High skid gear is required for the basket installation. Placard required on the lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FM\$702.90, Revision 2, dated 17 July 2008, or later approved revision is required with this installation.

AERO Design Ltd., Instructions for Continued Airworthiness ICA 698.90, Revision 1, dated 9 November 2006, or later accepted revision is required with this installation.

Basis of Certification is defined by the applicable Type Certificate Data Sheets, plus FAR 27 amendment 27-30.

(continued on page 6)





Number: SH00-48 Issue 8

NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

206L Series Configuration D - External Cargo Basket Installation (High Mounted Quick Release):

Installation of Configuration A External Attachment Provisions is a prerequisite for installation of Configuration D. External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada Approved Aero Design Ltd. Document Control List DCL766-1, Revision 0, dated 26 September 2007, or later approved revision. Approved emergency exit "push-out" windows or an approved sliding door are required on the side of the helicopter that the basket is installed on if passengers are to be carried. Placard is required on the basket lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS 766.92, Revision 0, dated 30 October 2007, is required with this installation.

Transport Canada accepted, AERO Design Ltd., Instructions for Continued Airworthiness ICA 766.90, Revision 0, dated 26 September 2007, is required with this installation.

Basis of Certification is defined by the applicable Type Certificate Data Sheets, plus FAR 27 at amendment 27-30 (Bell 407 basis).

All Models (Bell 206L series and 407)

Auxiliary Step Installation:

Installation of the Auxiliary Step is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL623, Revision 0, dated 13 January 2005, or later approved revision.

The auxiliary step is optional and is not required with installations listed above.

Auxiliary Step installed in accordance with DCL623 may remain installed if the basket installation is removed.

Basis of Certification is as defined in the Type Certificate Data Sheets, plus FAR 27 amendment 27-30.

(continued on page 7)



Number: SH00-48 Issue 8

NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

All Models (Bell 206L series and 407) Cargo Basket Modifications:

Modifications to the cargo basket configurations are eligible in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL704, Revision 0, dated 10 May 2006, or later approved revision. Eligibility limitations are noted on the drawings.

Quick Release Step Installation:

Installation of the Low Mounted Quick Release Cargo Basket (407 – Configuration D; 206L – Configuration C) is required prior to installation of the Quick Release Step. Installation of the Quick Release Step is to be completed in accordance with Transport Canada approved, AERO Design Ltd. Document Control List DCL800-2, Rev. 0, dated 2 December 2008, or later approved revision.

The Quick Release Step is optional and is not required with the Quick Release Cargo Basket Installation. The Quick Release Step may be stowed in the inboard position on the mounting provisions when the Quick Release Cargo Basket is installed.

AERO Design Ltd. Instructions for Continued Airworthiness ICA 800.90, Revision 2, dated 2 December 2008, or later accepted revision, is required with this installation.

Basis of Certification is as defined by the applicable Type Certificate Data Sheets, plus FAR 27, amendment 27-30.

– End –



Department of Transport

Supplemental Type Certificate

This approval is issued to:

Number: SH00-48

Aero Design Ltd.

Issue No.: 7

2013 39th Avenue North East

Approval Date: December 08, 2000

Calgary, Alberta

Issue Date: Apr

April 07, 2009

Canada T2E 6R7

Responsible Office: Prairie and Northern

Aircraft/Engine Type or Model: BELL 206L, 206L-1, 206L-3, 206L-4, 407

Canadian Type Certificate or Equivalent: BELL 206L, 206L-1, 206L-3, 206L-4, 407 H-92

Description of Type Design Change: Installation of Cargo Basket / External Attachment

Provisions/Auxiliary step./Quick Release Step

Installation/Operating Data,
Required Equipment and Limitations:

Bell 407 only:

407 Configuration A - External Attachment Provisions Only:

Installation of the External Attachment Provisions is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 700, Revision 1, dated 28 September 2007, or later approved revision.

AERO Design Ltd., Instructions for Continued Airworthiness ICA 700.90, Revision 0, dated 3 May 2006, or later accepted revision, is required with this installation.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS700.91, Revision 0, dated 4 May 2006, or later approved revision, is required with this installation.

External Attachment Provisions installed in accordance with DCL700 may remain installed if the basket installation is removed.

Basis of Certification remains as defined in the applicable Type Certificate Data Sheets.

(continued on page 2)

Conditions: This approval is only applicable to the type/model of aeronautical product specified therein. Prior to incorporating this modification, the installer shall establish that the interrelationship between this change and any other modification(s) incorporated **will not** adversely affect the airworthiness of the modified product.



R.A. Goossens For Minister of Transport

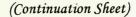


TRANSFER ENDORSEMENT

A transfer of ownership requires a prior approval from the Minister.

The reissue of the certificate in the name of the transferee will be contingent upon a demonstration made by the new owner that he/she can fulfill the responsibilities of the holder as described in airworthiness manual chapter 513.

	SIGNATURE RIGINAL OWN	NER)	30 Ply
DATE OF TRANSFER			
	_		
	_		*
	_		
TRANSFER PARTICULARS (LICENCE AGREEMENT, SALE OF RIGHTS, ETC.)			
	-		
	_		
	_		
FROM (NAME AND ADDRESS OF O	OWNER)		
	_		
	_		
TO (NAME AND ADDRESS OF TRA	NSFEREE) _		
TRANSFER OF OWNERSHIP			
as described in airworthiness manual cha	apter 513.		





Number: SH00-48 Issue 7

NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

<u>Bell 407 only:</u> (Continued) 407 Configuration B - External Cargo Basket (Low Mounted Fixed):

Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration B, External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL606, Revision 3, dated 28 September 2007, or later approved revision. High skid gear is required for the basket installation. Placard is required on the basket lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS 606.01, Revision 2, dated 28 September 2007, or later approved revision, is required with this installation.

AERO Design Ltd. Instructions for Continued Airworthiness ICA492.90, Revision 1, dated 28 September 2007, or later Transport Canada accepted revision, is required with this installation.

Basis of Certification remains as defined in the applicable Type Certificate Data Sheets.

407 Configuration C - External Cargo Basket Installation (High Mounted Fixed):

Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration C, External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL606-1, Revision 0, dated 1 February 2005, or later approved revision. Approved emergency exit "push out" windows or an approved sliding door are required on the side of the helicopter that the basket is installed on if passengers are to be carried. Placard required on the basket lid.

Transport Canada approved AERO Design Ltd., Flight Manual Supplement FMS 606.01 Revision 1 dated 01 February 2005, or later approved revision, is required with this installation.

(continued on page 3)



Number: SH00-48 Issue 7

NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN

Bell 407 only: (Continued)

407 Configuration C - External Cargo Basket Installation (High Mounted Fixed):

AERO Design Ltd., Maintenance Instructions MI606.01 Revision 2, dated 19 July 2004, or later accepted revision, are required with this installation.

Basis of Certification remains as defined in the applicable Type Certificate Data Sheets.

407 Configuration D - External Cargo Basket Installation (Low Mounted Quick Release):

Installation of Configuration A, External Attachment Provisions, is a prerequisite for installation of Configuration D, External Cargo Basket Installation. Installation of the Cargo Basket is to be completed in accordance with Transport Canada approved AERO Design Ltd., Document Control List DCL 701, Revision 3, dated 2 December 2008, or later approved revision. High skid gear is required for the basket installation. Placard required on the lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS701.90, Revision 2, dated 17 July 2008, or later approved revision is required with this installation.

AERO Design Ltd., Instructions for Continued Airworthiness ICA 698.90, Revision 1, dated 9 November 2006, or later accepted revision is required with this installation.

Basis of Certification is defined by the applicable Type Certificate Data Sheets.

Bell 407 Configuration E - External Cargo Basket Installation High Mounted Quick Release

Installation of Configuration A, External Attachment Provisions, is a prerequisite for installation of Configuration E, External Cargo Basket Installation. Installation of the Cargo Basket is to be completed in accordance with Transport Canada approved AERO Design Ltd., Document Control List DCL 766-1, Revision 0, dated 26 September 2007, or later approved revision. Approved emergency exit "push out" windows or an approved sliding door are required on the side of the helicopter that the basket is installed on if passengers are to be carried. Placard required on the lid.

(continued on page 4)



Number: SH00-48 Issue 7

NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS766.91, Revision 0, dated 30 October 2007, or later approved revision, is required with this installation.

AERO Design Ltd., Instructions for Continued Airworthiness ICA 766.90, Revision 0, dated 26 September 2007, or later accepted revision, is required with this installation.

Basis of Certification is defined by the applicable Type Certificate Data Sheets.

Bell 206L, L-1, L-3, L-4 only:

206L Series Configuration A - External Attachment Provisions Only:

Installation of the External Attachment Provisions is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 493, Revision 6, dated 10 May 2006, or later approved revision.

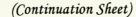
Transport Canada approved AERO Design Ltd. Flight Manual Supplement FMS 493.01, Revision 0, dated 19 May 2002, or later approved revision, is required with this installation.

AERO Design Ltd. Instructions for Continued Airworthiness ICA 493.90, Revision 0, dated 4 May 2006, or later Transport Canada accepted revision, is required with this installation.

External Attachment Provisions installed in accordance with DCL493 may remain installed if the basket installation is removed.

Basis of Certification is as defined in the Type Certificate Data Sheets, plus FAR27 at amendment 27-24.

(continued on page 5)





Number: SH00-48 Issue 7

NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

206L Series Configuration B - External Cargo Basket (Low Mounted):

Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration B, External Cargo Basket installation. Installation of the cargo basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL492, Revision 6, dated 28 September 2007, or later approved revision. High skid gear is required for the basket installation. Placard is required on the basket lid.

Transport Canada approved AERO Design Ltd., Flight Manual Supplement FMS 492.01, Revision 2, dated 28 September 2007, or later approved revision, is required with this installation.

AERO Design Ltd., Instructions for Continued Airworthiness ICA492.90, Revision 1, dated 28 September 2007, or later Transport Canada accepted revision, is required with this installation.

Basis of Certification is as defined in the Type Certificate Data Sheets, plus FAR27 at amendment 27-24.

206L Series Configuration C - External Cargo Basket Installation (Low Mounted Quick Release):

Installation of Configuration A, External Attachment Provisions, is a prerequisite for installation of Configuration C, External Cargo Basket Installation. Installation of the Cargo Basket is to be completed in accordance with Transport Canada approved AERO Design Ltd., Document Control List DCL 702, Revision 2, dated 2 December 2008, or later approved revision. High skid gear is required for the basket installation. Placard required on the lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS702.90, Revision 2, dated 17 July 2008, or later approved revision is required with this installation.

AERO Design Ltd., Instructions for Continued Airworthiness ICA 698.90, Revision 1, dated 9 November 2006, or later accepted revision is required with this installation.

Basis of Certification is defined by the applicable Type Certificate Data Sheets, plus FAR 27 amendment 27-30.

(continued on page 6)



Number: SH00-48 Issue 7

NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

206L Series Configuration D - External Cargo Basket Installation (High Mounted Quick Release):

Installation of Configuration A External Attachment Provisions is a prerequisite for installation of Configuration D. External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada Approved Aero Design Ltd. Document Control List DCL766-1, Revision 0, dated 26 September 2007, or later approved revision. Approved emergency exit "push-out" windows or an approved sliding door are required on the side of the helicopter that the basket is installed on if passengers are to be carried. Placard is required on the basket lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS 766.92, Revision 0, dated 30 October 2007, is required with this installation.

Transport Canada accepted, AERO Design Ltd., Instructions for Continued Airworthiness ICA 766.90, Revision 0, dated 26 September 2007, is required with this installation.

Basis of Certification is defined by the applicable Type Certificate Data Sheets, plus FAR 27 at amendment 27-30 (Bell 407 basis).

All Models (Bell 206L series and 407)

Auxiliary Step Installation:

Installation of the Auxiliary Step is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL623, Revision 0, dated 13 January 2005, or later approved revision.

The auxiliary step is optional and is not required with installations listed above.

Auxiliary Step installed in accordance with DCL623 may remain installed if the basket installation is removed.

Basis of Certification is as defined in the Type Certificate Data Sheets, plus FAR 27 amendment 27-30.

(continued on page 7)



Number: SH00-48 Issue 7

NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

All Models (Bell 206L series and 407) Cargo Basket Modifications:

Modifications to the cargo basket configurations are eligible in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL704, Revision 0, dated 10 May 2006, or later approved revision. Eligibility limitations are noted on the drawings.

Quick Release Step Installation:

Installation of the Low Mounted Quick Release Cargo Basket (407 – Configuration D; 206L – Configuration C) is required prior to installation of the Quick Release Step. Installation of the Quick Release Step is to be completed in accordance with Transport Canada approved, AERO Design Ltd. Document Control List DCL800-2, Rev. 0, dated 2 December 2008, or later approved revision.

The Quick Release Step is optional and is not required with the Quick Release Cargo Basket Installation. The Quick Release Step may be stowed in the inboard position on the mounting provisions when the Quick Release Cargo Basket is installed.

AERO Design Ltd. Instructions for Continued Airworthiness ICA 800.90, Revision 2, dated 2 December 2008, or later accepted revision, is required with this installation.

Basis of Certification is as defined by the applicable Type Certificate Data Sheets, plus FAR 27, amendment 27-30.

− End −





1100-9700 Jasper Avenue Edmonton, Alberta T5J 4E6

Your file

Votre reference

November 23, 2010

Our file Notre reference

C-10-0941 SH00-48

Aero Design Ltd. 2013 39th Avenue North East Calgary, Alberta Canada, T2E 6R7

Dear Sirs:

SUBJECT:

REVISION TO SUPPLEMENTAL TYPE CERTIFICATE NO. SH00-48 – ISSUE 8

DATED NOVEMBER 22, 2010 – INSTALLATION OF CARGO BASKET / EXTERNAL ATTACHMENT PROVISIONS / AUXILIARY STEP / QUICK

RELEASE STEP – BELL 206L, 206L-1, 206L-3, 206L-4, 407 ISSUED TO AERO

DESIGN LTD.

This Supplemental Type Certificate (STC) is issued in response to your application. Included with the STC are documents bearing the original Transport Canada signatures.

The transfer of these documents in the name of another person requires a prior approval from the Minister in accordance with Canadian Aviation Regulations (CAR) 521.357.

To accomplish this modification, the requirements of CAR 561 apply if parts are manufactured.

Embodiment of this modification is considered to be a maintenance activity and the requirements of CAR 571.06(4) will apply.

An STC holder is required to report any service problem experienced with their product. Therefore, should you be come aware of any defect, malfunction or failure resulting from the design change, it is your responsibility to submit a Service Difficulty Report to Transport Canada in accordance with CAR Part V, Subpart 91. Other Obligations as a Design Approval Document Holder are contained in CAR 521, Division VIII.

Yours truly,

I∕./Staal

Aircraft Certification Engineering Technologist

Prairie and Northern Region

Phone: 780-495-5227 Facs: 780-495-7963

staal

Encl.



MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

APPENDIX A-3 NORMAL CATEGORY ROTORCRAFT - CAR 527

BLOCK 1

Name of the applicant for the design change approval:

Aero Design Ltd.

Description of the design change:

Installation of Auxiliary Step on Bell 206L Series & 407

Certification Basis of design change and revision date:

FAR 27, Amendment 27-30

CAR Standard A527.1(c) Program showing how changes to supplemental ICA made by the applicant or by the manufacturers of products and appliances installed in the aeroplane pursuant to the design change will be distributed:

Section 0-3 of Supplemental ICA (ICA 623.91)

Installation Drawing 62302

CAR Standard 513.05 (1) (g) (iv): Installation Instructions:

BLOCK 2

Note: Enter "N/A" when no supplemental ICA are needed.

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
A527.2 (a) Manual(s) (a) The Instructions for Continued Airworthiness must be in the form of a manual or manuals as appropriate for the quantity of data to be provided.	ICA ref: Bell 206L Series/407Maintenance Manuals BHT-206L-MM, BHT-407-MM	Supplemental ICA ref: Single Manual (ICA827.93)
A527.2 (b) Practical arrangement (b) The format of the manual or manuals must provide for a practical arrangement.	ICA ref: Bell 206L Series/407Maintenance Manual	Supplemental ICA ref: Arranged in ATA format
A527.3 The Instructions for Continued Airworthiness must contain the following manuals or sections, as appropriate, and information:		
A527.3 (a) Rotorcraft maintenance manual or section		
A527.3 (a) (1) (Introduction) (1) Introduction information that includes an explanation of the rotorcraft's features and data to the extent necessary for maintenance or preventive maintenance.	ICA ref: Bell 206L Series/ 407Maintenance Manual, Chapter 1	Supplemental ICA ref: Section 0-1
A527.3 (a) (2) (Description) (2) A description of the rotorcraft and its systems and installations including its engines, rotors, and appliances.	ICA ref: Bell 206L Series/ 407Maintenance Manual, Chapter 1	Supplemental ICA ref: Section 0-5

MSI 53 - Review of Supplemental Instructions for Continued Airworthiness

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
A527.3 (a) (3) Control & Operation (3) Basic control and operation information describing how the rotorcraft components and systems are controlled and how they operate, including any special procedures and limitations that apply.	ICA ref: N/A	Supplemental ICA ref: N/A
A527.3 (a) (4) Servicing (4) Servicing information that covers details regarding servicing points, capacities of tanks, reservoirs, types of fluids to be used, pressures applicable to the various systems, location of access panels for inspection and servicing, locations of lubrication points, lubricants to be used, equipment required for servicing, tow instructions and limitations, mooring, jacking, and levelling information.	ICA ref: Bell 206L Series/ 407Maintenance Manual, Chapter 12	Supplemental ICA ref: N/A
A527.3 The Instructions for Continued Airworthiness must contain the following manuals or sections, as appropriate, and information:		
A527.3 (b) Maintenance Instructions. A527.3 (b) (1) Scheduling 1) Scheduling information for each part of the rotorcraft and its engines, auxiliary power units, rotors, accessories, instruments, and equipment that provides the recommended periods at which they should be cleaned, inspected, adjusted, tested, and lubricated, and the degree of inspection, the applicable wear tolerances, and work recommended at these periods. However, the applicant may refer to an accessory, instrument, or equipment manufacturer as the source of this information if the applicant shows that the item has an exceptionally high degree of complexity requiring specialized maintenance techniques, test equipment, or expertise. The recommended overhaul periods and necessary cross-references to the Airworthiness Limitations section of the manual must also be included. In addition, the applicant must include an inspection program that includes the frequency and extent of the inspections necessary to provide for the continued airworthiness of the rotorcraft.	ICA ref: Bell 206L Series/ 407Maintenance Manual, Chapter 5	Supplemental ICA ref: Section 5-1
A527.3 (b) (2) Troubleshooting (2) Troubleshooting information describing probable malfunctions, how to recognize those malfunctions, and the remedial action for those malfunctions.	ICA ref: N/A	Supplemental ICA ref: N/A

MSI 53 - Review of Supplemental Instructions for Continued Airworthiness

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
A527.3 (b) (3) Removal/replacement (3) Information describing the order and method of removing and replacing products and parts with any necessary precautions to be taken.	ICA ref: Bell 206L Series/ 407Maintenance Manual, Chapter 25	Supplemental ICA ref: Section 25-1 and 25-2
A527.3 (b) (4) General (4) Other general procedural instructions including procedures for system testing during ground running, symmetry checks, weighing and determining the center of gravity, lifting and shoring, and storage limitations.	ICA ref: Bell 206L Series/ 407Maintenance Manual, Chapter 7 and 8	Supplemental ICA ref: Section 25-3
A527.3 (c) Access (c) Diagrams of structural access plates and information needed to gain access for inspections when access plates are not provided.	ICA ref: N/A	Supplemental ICA ref: N/A
A527.3 (d) Special inspections (d) Details for the application of special inspection techniques including radiographic and ultrasonic testing where such processes are specified.	ICA ref: Bell 206L Series/407Maintenance Manual, Chapter 5	Supplemental ICA ref: Section 5-1
A527.3 (e) Protective treatment (e) Information needed to apply protective treatments to the structure after inspection.	ICA ref: Bell Standard Practices Manual BHT-ALL-SPM, Chapter 3 & 4	Supplemental ICA ref: Section 5-3
A527.3 (f) Fasteners, torque values, etc (f) All data relative to structural fasteners such as identification, discard recommendations, and torque values.	ICA ref: Bell Standard Practices Manual BHT-ALL-SPM, Chapter 2	Supplemental ICA ref: Section 25-4
A527.3 (g) Special tools (g) A list of special tools needed.	ICA ref: N/A	Supplemental ICA ref: N/A

MSI 53 - Review of Supplemental Instructions for Continued Airworthiness

BLOCK 3

Note: The statement in block 5 does not constitute an approval of the Airworthiness Limitations Section. Airworthiness Limitations differ from other maintenance tasks, in that they are mandatory, as a direct condition of the approval of the type design. They are therefore referenced directly in the approval document itself. However, they must also be included in the Supplemental Instructions for Continued Airworthiness.

A527.4 AWL - Separate Section 1

The Instructions for Continued Airworthiness must contain a section titled Airworthiness Limitations that is segregated and clearly distinguishable from the rest of the document. This section must set forth each mandatory replacement time, structural inspection interval, and related structural inspection procedure approved under 527.571. If the Instructions for Continued Airworthiness consist of multiple documents, the section required by this paragraph must be included in the principal manual. This section must contain a legible statement in a prominent location that reads: "The Airworthiness Limitations section is approved by the Minister and specifies maintenance required by any applicable airworthiness or operating rule unless an alternative program has been approved by the Minister."

ICA ref: Bell 206L Series/407Maintenance Manual, Chapter 4

Supplemental ICA ref: Section 4

BLOCK 4 – Applicant Statement of Compliance

The Supplemental ICA referenced above comprises the complete listing of supplemental ICA necessary to show compliant that supports this change in type design.	nce with the regulatory standard
Applicants Signature:	Date: May 5, 2010
Applicants Name: E. Burgoin, P.Eng, DAR 290M	

t	BLOCK 5 – Minister's Statement of Acceptability						
	The design change is adequately supported by existing ICA and/or supplemental ICA, as identified above and is acceptable to the Minister.						
	Reviewer's Name: J. STAAL Phone # 780 - 495 - 5aa7	Jack. staal @ Email: <u>tc.gc.ca</u> Mail Routing Symbol: <u>RAED</u>					
	Signature: Date: Date:	NAPA Number					
		C-10-0941					
		(c-69-0443 also)					

	MODATION APPROV	AL R	EQUEST AP	PLICAT	F	DRM	MOD6	98, Rev.
1.	NAME AND ADDRESS OF APPLICANT:	2.	IDENTIFICATION	OF PRODU	СТ			
	AERO Design Ltd. 2013 - 39th Avenue NE Calgary, Alberta, Canada T2E 6R7	MAK B	Œ: ell Helicopter (T	extron)		DDEL: 206L serie	s, 407	
	ALL CORRESPONDANCE TO: AERO Design Ltd. 2013 - 39th Avenue NE Calgary, Alberta T2E 6R7		RIAL No.: Il eligible			GISTRATION All eligible	4 :	
3.	REQUEST FOR:	- And Andrewskin						
	A. SUPPLEMENTAL TYPE CERTIFICATE (STC)							
	B. STC/STA REVISION	\boxtimes	STC/STA No. Si	H00-48		4	joing	
	C. LIMITED SUPPLEMENTAL TYPE CERTIFICATE (LSTC)					<->'	to 7	0
	D. LIMITED STC/STA REVISION		LSTC/LSTA No.				15500	8.
	E. F.A.A. SUPPLEMENTAL TYPE CERTIFICATE							Q2
			STC No.					P.
	F. F.A.A. STC REVISION							•
	G. FAMILIARIZATION OF F.A.A. STC		STC No.					
	H. REPAIR DESIGN APPROVAL (RDC)							
	I. PARTS DESIGN APPROVAL (PDA)							
	TITLE OF MODIFICATION OR REPAIR: Quick Release Cargo Basket Installation							
5.	BRIEF DESCRIPTION OF MODIFICATION OR REPAIR: Update approved data to most current revisions.							
		- (70) 5	0.0111170					
	APPLICABLE TYPE APPROVAL (TA) OR TYPE CERTIFICATE							
	A. TA NO. H-92 B. TC No. H2SW		C. OTHER					
			OTUED [/Di				
	A. SAME AS TA ☑ B. SAME AS TC □		C. OTHER	(Please s			80=110=	OF BLACK
	DOCUMENTATION CHECKLIST			REQU	IKED	FOR	RECEIVED	
	DOGGINENTATION GITEGREIO			YES	NO	YES	≥ NO	DATE
	COMPLIANCE PROGRAM	***************************************		х				
-	MASTER DRAWING LIST			х		2.2		*3.42.44.4
	FLIGHT MANUAL SUPPLEMENT			х				
	MAINTENANCE MANUAL SUPPLEMENT				Х			3.5
	INSTRUCTIONS FOR CONTINUING AIRWORTHINESS			Х			(4)	50 T
	ENGINEERING REPORTS			х		****		
	DESIGN DRAWINGS				Х	SSCREEK	(and	193
	MANUFACTURE DRAWINGS & INSTALLATION INSTRUCTION	1S		Х		Poto labilitata	2.25	* -
	ELECTRICAL LOAD ANALYSIS				Х		(1000) (1000) (1000) (1000)	
	DRAFT STC, LSTC OR RDA				Х	es production of the control of the	SARKE.	
	WEIGHT AND MOMENT CHANGE			Х			3,62	
	FLIGHT TEST DATA			X		0.33500 P		
	OTHER (Specify)				Х		(35)	
	APPLICANT'S REMARKS: STC based on Transport Canada STC # SH00-48 issue 7							
0.	In addition to the payment of Aircraft Certification approval fees as prescrit incremental expenses as in Aviation Regulation Directive No. 3, or equival AERO Design Ltd.	bed in Ca lent, as ap	nadian Aviation Regula oplicable. For further d	ations (CAR) t details governi	Section 104, ng cost reco	, I agree to reim overy, refer to A	burse Transp MA 513/4.	oort Canad
	PER:	Col	nsultant				8 Novemb	per, 2010
	SIGNATURE OF APPLICANTS	TITLE					DATE	
11.	SIGNATURE OF REGIONAL ENGINEER IN Tech -					17 No	O ZO	010

Form M@D, 25 March. 2001

AERO DESIGN LTD.

2013 - 39 Avenue N.E., Calgary, Alberta, T2E 6R7

Tel: 403-250-8027 Fax: 403-250-8333 www.aerodesign.ca

25 October, 2010

Transport Canada Aircraft Certification Division 9700 Jasper Avenue Edmonton Alberta T5J 4E6

Re: FAA STC Revision for Bell 407 & 206L series Helicopter Cargo Baskets

Attn: Jack Staal TCCA File: SH00-48

Please forward the following documents to the FAA in order to bring the STC up to date:

FAA STC Application Form Modification Approval Request Application Form Transport Canada Supplemental Type Certificate (copy) FAA Supplemental Type Certificate (copy)	8110.12 MOD698 SH00-48 SR02253NY	Rev. 1 Issue 7 Apr.19/2006
A (407 Provisions) Compliance Program Compliance Program AE-100 Form AE-100 Form * Document Control List Instructions for Continued Airworthiness Flight Manual Supplement Installation Drawing (407 provisions)	CP493 CP606 AE493 AE700 DCL700 ICA 700.90 FMS 700.91 60602	Rev. 2 Rev. 0 Rev. 1 Rev. 1 Rev. 0 Rev. 0 Rev. 0
B (407 Low-Mounted Fixed) Compliance Program AE-100 Form * Document Control List (Installation) Instructions for Continued Airworthiness * Flight Manual Supplement Installation Drawing Engineering Report	CP606 AE606 DCL606 ICA 492.90 FMS 606.01 60601 ER 606.02 ER 492.01 ER 492.02 ER 492.03 ER 492.04	Rev. 0 Rev. 2 Rev. 3 Rev. 1 Rev. 2 Rev. 2 Rev. 0
C (407 High-Mounted Fixed) Compliance Program AE-100 Form Document Control List Instructions for Continued Airworthiness Flight Manual Supplement Installation Drawing	CP606 AE606-1 DCL606-1 MI 606.01 FMS 606.01 60602	Rev. 0 Rev. 0 Rev. 1 Rev. 2 Rev. 1 Rev. 0

(Items marked * are found on the STC)

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	Installation Drawing Engineering Report	60603 ER 606.01 ER 606.02 ER 606.03 TR 606.04 TR 606.05 ER 492.01 ER 492.02 ER 492.03 ER 493.01 ER 493.03 ER 362.02	Rev. 0 Rev. 0 Rev. 0 Rev. 0 Rev. 0 Rev. 0 Rev. 0 Rev. 1 Rev. 0 Rev. 2
* *	Compliance Program AE-100 Form (original) AE-100 Form (changes) AE-100 Form (original) AE-100 Form (original) AE-100 Form (changes) AE-100 Form (changes) AE-100 Form (changes) Document Control List (Installation) Document Control List (Basket Ass'y) Document Control List (Beams Ass'y) Instructions for Continued Airworthiness Flight Manual Supplement Installation Drawing (Q-R Basket) Installation Drawing (Provisions) Service Instructions (Sliding Door Modification) Engineering Report Engineering Report Engineering Report	CP698 AE698-1 AE698-2 AE698-2 AE698-2 AE698-2 AE701 AE701 AE701 DCL701 DCL698-1 DCL698-2 ICA 698.90 FMS 701.90 70101 70102 SI698.91 ER 698.01 ER 698.02 TP 698.03 ER 698.04	Rev. 0 Rev. 0 Rev. 1 Rev. 3 Rev. 1 Rev. 2 Rev. 3 Rev. 3 Rev. 1 Rev. 3 Rev. 1 Rev. 3 Rev. 0 Rev. 0 Rev. 0 Rev. 0 Rev. 0
Ε	(407 High-Mounted Q-R) Compliance Program AE-100 Form (original) AE-100 Form (changes)	CP766 AE766-1 AE766-1	Rev. 0 Rev. 0 Rev. 1
*	AE-100 Form (original)	AE766-2	Rev. 0
	Document Control List (Installation) Document Control List (Basket Ass'y)	DCL766-1 DCL766-2	Rev. 0 Rev. 0
*	Instructions for Continued Airworthiness Flight Manual Supplement Installation Drawing Engineering Report Engineering Report Engineering Report	ICA 766.90 FMS 766.91 76601 ER 766.01 TP 766.02 ER 606.03	Rev. 0 Rev. 0 Rev. 0 Rev. 0 Rev. 0

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* * *	(206L series Provisions) Compliance Program AE-100 Form (original approve) AE-100 Form (recommend) Document Control List Instructions for Continued Airworthiness Flight Manual Supplement Installation Drawing Engineering Report Engineering Report Engineering Report	CP493 AE493.01 AE493.02 DCL493 ICA 493.90 FMS 493.01 49301 ER 493.03 ER 493.03 ER 261.02	Rev. 2 Rev. 0 Rev. 0 Rev. 0 Rev. 0 Rev. 2 Rev. 0 Rev. 1 Rev. 0
* * *	(206L series Lo-Mounted Fixed) Compliance Program AE-100 Form Document Control List (Installation) Document Control List (Basket Ass'y) Instructions for Continued Airworthiness Flight Manual Supplement Installation Drawing Engineering Report Engineering Report Engineering Report Engineering Report Engineering Report Engineering Report	CP492 AE492 DCL492 DCL492-1 ICA 492.90 FMS 492.01 49201 ER 492.01 ER 492.02 ER 492.03 ER 492.04 ER 362.02	Rev. 3 Rev. 2 Rev. 6 Rev. 1 Rev. 2 Rev. 3 Rev. 0 Rev. 0 Rev. 0 Rev. 0 Rev. 2
*	Compliance Program AE-100 Form (original) AE-100 Form (changes) AE-100 Form (original) AE-100 Form (original) AE-100 Form (changes) AE-100 Form (changes) AE-100 Form (original) AE-100 Form (original) AE-100 Form (changes) Document Control List (Installation) Document Control List (Basket Ass'y) Document Control List (Beams Ass'y) Instructions for Continued Airworthiness Flight Manual Supplement Installation Drawing (QR Basket) Installation Drawing (Provisions) Engineering Report Engineering Report Engineering Report Engineering Report	CP698 AE698-1 AE698-1 AE698-2 AE698-2 AE698-2 AE702 AE702 AE702 DCL702 DCL698-1 DCL698-2 ICA 698.90 FMS 702.90 70201 70202 ER 698.01 ER 698.02 TP 698.03 ER 698.04	Rev. 0 Rev. 0 Rev. 1 Rev. 0 Rev. 1 Rev. 2 Rev. 1 Rev. 2 Rev. 3 Rev. 1 Rev. 3 Rev. 0 Rev. 0 Rev. 0 Rev. 0 Rev. 0

(Items marked * are found on the STC)

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D (20	Compliance Program AE-100 Form (original) AE-100 Form (changes) AE-100 Form (original) Document Control List (Installation) Document Control List (Basket Ass'y) Instructions for Continued Airworthiness Flight Manual Supplement (206L series) Installation Drawing Engineering Report Engineering Report	CP766 AE766-1 AE766-1 AE766-2 DCL766-1 DCL766-2 ICA 766.90 FMS 766.92 76601 ER 766.01 TP 766.02 ER 603.03	Rev. 0 Rev. 0 Rev. 0 Rev. 0 Rev. 0 Rev. 0 Rev. 0 Rev. 0 Rev. 0 Rev. 0
(ALL) *	(Auxiliary Step) AE-100 Form Document Control List Installation Drawing Engineering Report	AE623 DCL623 62301 ER 623.01	Rev. 2 Rev. 2 Rev. 1 Rev. 0
(ALL) *	(Basket Modifications) AE-100 Form Document Control List Engineering Report	AE704 DCL704 ER 704.02	Rev. 6 Rev. 6 Rev. 0
(ALL) * *	(Quick Release Step) AE-100 Form Compliance Program Document Control List (Install) Document Control List (Step Assembly) Instructions for Continued Airworthiness Installation Drawing Engineering Report	AE800-2 CP800-2 DCL800-2 DCL800-12 ICA 800.90 80002 ER 800.02	Rev. 0 Rev. 0 Rev. 0 Rev. 0 Rev. 2 Rev. 0 Rev. 0

The following fabrication & assembly drawings are applicable to many configurations of baskets, therefore are provided separately to reduce duplication.

Drawings:

36255 R.1	49208 R.1	49301 R.2	60640 R.0	62340 R.0	69831 R.3	70428 R.0
36261 R.6	49209 R.1	49311 R.3	60641 R.0	69810 R.2	70101 R.3	70438 R.0
36262 R.1	49210 R.1	49312 R.4	60642 R.0	69811 R.2	70102 R.0	76601 R.0
36271 R.1	49212 R.0	49320 R.1	60643 R.0	69812 R.1	70201 R.3	76610 R.0
36272 R.1	49213 R.1	60601 R.2	60644 R.0	69821 R.1	70202 R.0	76611 R.0
36273 R.1	49214 R.0	60602 R.0	60645 R.0	69822 R.0	70401 R.1	76621 R.0
36274 R.1	49215 R.0	60603 R.0	60646 R.0	69823 R.1	70402 R.1	76622 R.0
36275 R.2	49216 R.0	60620 R.1	60647 R.0	69824 R.0	70403 R.3	76623 R.0
36277 R.0	49217 R.1	60621 R.2	60648 R.0	69825 R.0	70405 R.2	76625 R.0
36278 R.2	49218 R.2	60622 R.1	60649 R.0	69826 R.0	70406 R.0	76630 R.0
36280 R.2	49219 R.0	60624 R.0	60650 R.0	69827 R.1	70407 R.0	80002 R.0
49201 R.3	49221 R.3	60630 R.0	62301 R.1	69830 R.0	70408 R.0	80010 R.1
49205 R.1	49222 R.2	60631 R.0	62302 R.0	69830 R.3	70409 R.0	80020 R.0
49207 R.1	49230 R.0	60632 R.0	62320 R.2	69831 R.0	70420 R.0	

Tel: 403-250-8027 Fax: 403-250-8333 www.aerodesign.ca

Every attempt has been made to provide a package of data that is as complete as possible, sorted in a fashion that resembles the multiple configurations that are found on the STC. In addition, copies of the documents have been sorted by type in separate folders, if it will help comparing similar documents.

The data has been copied onto 3 (three) separate CD-ROM disks. Please keep one copy for your files, and forward the other two to the FAA.

If there is any requirement for more information, if you find any document that requires correct, or must pass on any inquiry from the FAA, please inform Aero Design Ltd. as soon as possible. You may reach us either at the phone numbers above, or at the following e-mail addresses:

ted@aerodesign.ca steve@aerodesign.ca (DAR 290M) (engineering technologist)

We will do our best to rectify any concern with as little delay as possible.

Regards,

E∖ Burgoin, P\Eng, DAR 290M

Encl.

No certificate may be issued unles a completed a ation form has been received (14 C.F.R. 21)

DEPARTMENT OF TRANSPO FEDERAL AVIATION ADMINI	FORM APPROVED					
APPLICATION FOR TYPE CERTIFICATE, F	PRODUCTION CERTIFICATE,	O.M.B. No. 04-R0078				
OR SUPPLEMENTAL TYPE						
 Name and address of applicant Aero Design Ltd. 2013 - 39th Avenue NE Calgary, Alberta, T2E 6R7 Canada 	2. Application made for - Type Certificate Production Certificate Southfloate	3. Product involved Aircraft Engine Propeller				
4 TVDE OFFICIATE (Occupied for the local)	Certificate					
TYPE CERTIFICATE (Complete item 4a below) a. Model designation(s) (All models listed are to be completely de	secribed in the required technical data, including	drawinas				
representing the design, material, specifications, construction, which is the subject of this application.)						
PRODUCTION CERTIFICATE (Complete items 5a-c below of quality control data or changes thereto covering new product)		ру				
a. Factory address (If different from 1 above)	b. Application is for - New Production Certificate Additions to Production Certificate (Give P.C. No.)	P.C. No.				
c. Applicant is holder of or a licensee under a Type Certificate or a (Attach evidence of licensing agreement and give ertificate number)		T.C./S.T.C. No.				
6. SUPPLEMENTAL TYPE CERTIFICATE (Complete items	6a-d below)					
a. Make and model designation of product to be modified Bell Helicopter (Textron)						
b. Description of modification Revision to FAA STC SR02253NY, Installation of External Cargo Basket, Quick Release Provisions, and Step Provisions for mounting the Cargo Basket are installed by replacement of the landing gear saddles, with new saddles that incorporate additional hardware. Support beams attach to the fasteners in the provisions. The steel frame and mesh basket attaches to the support beams, to carry cargo externally. The basket can be mounted and removed from the beams without tools. Different cargo basket and support beam combinations are available for baskets that mount "high" beside the fuselage, or "low" between the cross-tube legs of the landing gear. Optional Steps attach to the same provisions for the Cargo Baskets.						
c. Will data be available for sale or release to other persons?	d. Will parts be manufactured for sale	e? (Ref. FAR 21.303)				
☐ YES 🛛 NO	⊠ YES □ NO					
7. CERTIFICATION - I certify that the above statements are tru	ue.					
Signature of certifying official	Title E. Burgoin DAR 290M (AERO Design Ltd.)	Date 30 October, 2010				

<i>V</i>	MODIFICATION APPROVA	AL RE	QUEST AP	PLICAT	ION FO	ORM .	MOD6	98, Rev. 1
1.	NAME AND ADDRESS OF APPLICANT:	2.	IDENTIFICATION	OF PRODU	СТ			
	AERO Design Ltd. 2013 - 39th Avenue NE Calgary, Alberta, Canada T2E 6R7 MAKE: Bell Helicopter (Textron)					MODEL: 206L series, 407		
	ALL CORRESPONDANCE TO: AERO Design Ltd. 2013 - 39th Avenue NE Calgary, Alberta T2E 6R7		AL No.: l eligible			GISTRATION All eligible	1:	
3.	REQUEST FOR:							
	A. SUPPLEMENTAL TYPE CERTIFICATE (STC)							
	B. STC/STA REVISION		STC/STA No.					
	C. LIMITED SUPPLEMENTAL TYPE CERTIFICATE (LSTC)							
	D. LIMITED STC/STA REVISION		LSTC/LSTA No.					
	E. F.A.A. SUPPLEMENTAL TYPE CERTIFICATE							
	F. F.A.A. STC REVISION	\boxtimes	STC No. SR022	53NY				
	G. FAMILIARIZATION OF F.A.A. STC		STC No.					
	H. REPAIR DESIGN APPROVAL (RDC)							
	I. PARTS DESIGN APPROVAL (PDA)							
4.	TITLE OF MODIFICATION OR REPAIR:			•				
5.	Quick Release Cargo Basket Installation BRIEF DESCRIPTION OF MODIFICATION OR REPAIR:							
5	Installation of Cargo Basket on side of the helicopter. The mounti Support beams for the basket are attached to the fittings. The Ca This revision incorporates all design changes and revised substar	argo Bask	et can be installed	and remove	ed from the	beams without	out tools.	
6.	APPLICABLE TYPE APPROVAL (TA) OR TYPE CERTIFICATE	(TC) DO	CUMENTS:					
	A. TA NO. H-92 B. TC No. H2SW	С	OTHER					
7.	PROPOSED BASIS OF APPROVAL:							
	A. SAME AS TA 🛛 B. SAME AS TC 🗍	С	OTHER _	(Please s				
8.	DOCUMENTATION OFFICE			REQL	JIRED	FOR	DOT USE RECEIVED	
	DOCUMENTATION CHECKLIST			YES	NO	YES	NO	DATE
-	COMPLIANCE PROGRAM			X			-2-1	
	MASTER DRAWING LIST			Х				
	FLIGHT MANUAL SUPPLEMENT		/	Х				
	MAINTENANCE MANUAL SUPPLEMENT				Х			
	INSTRUCTIONS FOR CONTINUING AIRWORTHINESS			Х				
	ENGINEERING REPORTS			Х				
	DESIGN DRAWINGS				Х			
	MANUFACTURE DRAWINGS & INSTALLATION INSTRUCTION	18		Х				
	ELECTRICAL LOAD ANALYSIS				Х			115
	DRAFT STC, LSTC OR RDA				Х			
	WEIGHT AND MOMENT CHANGE			Х				
	FLIGHT TEST DATA			Х				
	OTHER (Specify)				Х			
9.	APPLICANT'S REMARKS: STC based on Transport Canada STC # SH00-48 issue 7 In addition to the payment of Aircraft Certification approval fees as prescrib	bed in Can	adian Aviation Regul	ations (CAR) S	Section 104,	I agree to reim	burse Transp	port Canada
	incremental expenses as in Aviation Regulation Directive No. 3, or equivalent AERO Design Ltd.	lent, as app	olicable. For further o	letails governi	ng cost reco	very, refer to A	MA 513/4.	
	PER	Con	sultant				22 Octobe	er. 2010
	SIGNATURE OF APPLICANTS	TITLE	ouitailt				DATE	
11.	SISHAIONE OF AFFLIGANIS	TITLE					J. 11 L	
	SIGNATURE OF REGIONAL ENGINEER						DATE	

Bell Cargo Basket Configuration Matrix

As of Issue 7, April 07, 2009

TC TCDS H-92	ST	C SH00-48 iss. 7	R			
(FAA H2SW)	1	Modification	Installation *	Flight Manual *	Instructions for Continued **	Modification Basis of
Rotorcraft Type	(Configuration	Document	Supplement	Airworthiness	Certification
	A	Provisions	DCL 700, Rev. 1	FMS 700.91, Rev. 0	ICA 700.90, Rev. 0	As per TCDS
Bell Helicopter	В	Low-Mount Fixed	DCL 606, Rev. 3	FMS 606.01, Rev. 2	ICA 492.90, Rev. 1	As per TCDS
(Textron)	С	High-Mount Fixed	DCL 606-1, Rev. 1	FMS 606.01, Rev. 1	MI 606.01, Rev. 2	As per TCDS
407	D	Low-Mount Quick-Release	DCL 701, Rev. 3	FMS 701.90, Rev. 2	ICA 698.90, Rev. 1	As per TCDS
	E	High-Mount Quick-Release	DCL 766-1, Rev. 0	FMS 766.91, Rev. 0	ICA 766.90, Rev. 0	As per TCDS
Bell Helicopter	A	Provisions	DCL 493, Rev. 6	FMS 493.01, Rev. 0	ICA 493.90, Rev. 0	FAR 27 Amdt. 27-24
(Textron) 206L,	В	Low-Mount Fixed	DCL 492, Rev. 6	FMS 492.01, Rev. 2	ICA 492.90, Rev. 1	FAR 27 Amdt. 27-24
206L-1, 206L-3,	С	Low-Mount Quick-Release	DCL 702, Rev. 2	FMS 702.90, Rev. 1	ICA 698.90, Rev. 1	FAR 27 Amdt. 27-30
206L-4	D	High-Mount Quick-Release	DCL 766-1, Rev. 0	FMS 766.92, Rev. 0	ICA 766.90, Rev. 0	FAR 27 Amdt. 27-30
ALL		Pilot Step	DCL 623, Rev. 0	n/a	n/a	FAR 27 Amdt. 27-30
(407 & 206L series)	Ва	sket Modifications	DCL 704, Rev. 0	n/a	n/a	FAR 27 Amdt. 27-30
Zuul Series)		Quick-Release Step	DCL 800-2, Rev. 0	n/a	ICA 800.90, Rev. 2	FAR 27 Amdt. 27-30

^{*} or later Transport Canada approved revision.

Subsequent changes to DCL766-1 (rev 1), DCL623 (rev. 2), DCL704 (rev. 6)

^{**} or later Transport Canada accepted revision.

Bell Cargo Basket Configuration Matrix

As of 19 April, 2006

FAA TCDS	S	TC SR02253NY	R			
H2SW (TCCA H-92)		Modification	Installation *	Flight Manual *	Instructions for Continued **	Modification Basis of
Rotorcraft Type		Configuration	Document	Supplement	Airworthiness	Certification
	Α	Provisions	DCL 606, Rev. 1 or DCL 606-1, Rev. 1	FMS 700.91, Rev. 0	MI 606.01, Rev. 2	As per TCDS
Bell Helicopter	В	Low-Mount Fixed	DCL 606, Rev. 1	FMS 606.01, Rev. 1	MI 606.01, Rev. 2	As per TCDS
(Textron)	С	High-Mount Fixed	DCL 606-1, Rev. 1	FMS 606.01, Rev. 1	MI 606.01, Rev. 2	As per TCDS
407						
Bell Helicopter	Α	Provisions	DCL 493, Rev. 5	FMS 493.01, Rev. 0	MI 493.01, Rev. 2	FAR 27 Amdt. 27-30
(Textron) 206L,	В	Low-Mount Fixed	DCL 492, Rev. 4	FMS 492.01, Rev. 1	MI 492.01, Rev. 3	FAR 27 Amdt. 27-30
206L-1, 206L-3, 206L-4						/
2001-4						54B 07
ALL		Pilot Step	DCL 623, Rev. 0	n/a	n/a	FAR 27 Amdt. 27-30
(407 & 206L series)						
,						

^{*} or later Transport Canada approved revision. ** or later Transport Canada accepted revision.

Bell Cargo Basket Configuration Matrix

Application for this change submitted 26 October, 2010

FAA TCDS	S	TC SR02253NY	R	Required Documentat	ion	
H2SW (TCCA H-92)		Modification	Installation *	Flight Manual *	Instructions for Continued **	Modification Basis of
Rotorcraft Type		Configuration	Document	Supplement	Airworthiness	Certification
	Α	Provisions	DCL 700, Rev. 1	FMS 700.91, Rev. 0	ICA 700.90, Rev. 0	As per TCDS
Bell Helicopter	В	Low-Mount Fixed	DCL 606, Rev. 3	FMS 606.01, Rev. 2	ICA 492.90, Rev. 1	As per TCDS
(Textron)	С	High-Mount Fixed	DCL 606-1, Rev. 1	FMS 606.01, Rev. 1	MI 606.01, Rev. 2	As per TCDS
407	D	Low-Mount Quick-Release	DCL 701, Rev. 3	FMS 701.90, Rev. 2	ICA 698.90, Rev. 1	As per TCDS
	E	High-Mount Quick-Release	DCL 766-1, Rev. 1	FMS 766.91, Rev. 0	ICA 766.90, Rev. 0	As per TCDS
Bell Helicopter	Α	Provisions	DCL 493, Rev. 6	FMS 493.01, Rev. 0	ICA 493.90, Rev. 0	FAR 27 Amdt. 27-24
(Textron) 206L,	В	Low-Mount Fixed	DCL 492, Rev. 6	FMS 492.01, Rev. 2	ICA 492.90, Rev. 1	FAR 27 Amdt. 27-24
206L-1, 206L-3,	С	Low-Mount Quick-Release	DCL 702, Rev. 2	FMS 702.90, Rev. 1	ICA 698.90, Rev. 1	FAR 27 Amdt. 27-30
206L-4	D	High-Mount Quick-Release	DCL 766-1, Rev. 1	FMS 766.92, Rev. 0	ICA 766.90, Rev. 0	FAR 27 Amdt. 27-30
ALL		Pilot Step	DCL 623, Rev. 2	n/a	n/a	FAR 27 Amdt. 27-30
(407 & 206L series)	Ва	sket Modifications	DCL 704, Rev. 6	n/a	n/a	FAR 27 Amdt. 27-30
ZUUL SEI IES)		Quick-Release Step	DCL 800-2, Rev. 0	n/a	ICA 800.90, Rev. 2	FAR 27 Amdt. 27-30

^{*} or later Transport Canada approved revision. ** or later Transport Canada accepted revision.



Department of Transport

Supplemental Type Certificate

This approval is issued to:

Number: SH00-48

Aero Design Ltd.

Issue No.: 7

2013 39th Avenue North East

Approval Date: December 08, 2000

Calgary, Alberta

Issue Date: April 07, 2009

Canada T2E 6R7

Responsible Office:

Prairie and Northern

Aircraft/Engine Type or Model:

BELL 206L, 206L-1, 206L-3, 206L-4, 407

Canadian Type Certificate or Equivalent:

BELL 206L, 206L-1, 206L-3, 206L-4, 407 H-92

Description of Type Design Change:

Installation of Cargo Basket / External Attachment Provisions/Auxiliary step./Quick Release Step

Installation/Operating Data, Required Equipment and Limitations:

Bell 407 only:

407 Configuration A - External Attachment Provisions Only:

Installation of the External Attachment Provisions is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 700, Revision 1, dated 28 September 2007, or later approved revision.

AERO Design Ltd., Instructions for Continued Airworthiness ICA 700.90, Revision 0, dated 3 May 2006, or later accepted revision, is required with this installation.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS700.91, Revision 0, dated 4 May 2006, or later approved revision, is required with this installation.

External Attachment Provisions installed in accordance with DCL700 may remain installed if the basket installation is removed.

Basis of Certification remains as defined in the applicable Type Certificate Data Sheets.

(continued on page 2)

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Conditions: This approval is only applicable to the type/model of aeronautical product specified therein. Prior to incorporating this modification, the installer shall establish that the interrelationship between this change and any other modification(s) incorporated **will not** adversely affect the airworthiness of the modified product.

R.A. Goossens For Minister of Transport



Number: SH00-48 Issue 7

NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

Bell 407 only: (Continued)

REVIT = STEEL BEAMS

407 Configuration B - External Cargo Basket (Low Mounted Fixed):

Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration B, External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL606, Revision 3, dated 28 September 2007, or later approved revision. High skid gear is required for the basket installation. Placard is required on the basket lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS 606.01, Revision 2, dated 28 September 2007, or later approved revision, is required with this installation.

AERO Design Ltd. Instructions for Continued Airworthiness ICA492.90, Revision 1, dated 28 September 2007, or later Transport Canada accepted revision, is required with this installation.

Basis of Certification remains as defined in the applicable Type Certificate Data Sheets.

407 Configuration C - External Cargo Basket Installation (High Mounted Fixed):

Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration C, External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL606-1, Revision 0, dated 1 February 2005, or later approved revision. Approved emergency exit "push out" windows or an approved sliding door are required on the side of the helicopter that the basket is installed on if passengers are to be carried. Placard required on the basket lid.

Transport Canada approved AERO Design Ltd., Flight Manual Supplement FMS 606.01 Revision 1 dated 01 February 2005, or later approved revision, is required with this installation.

(continued on page 3)

Page 2 of 7



Number: SH00-48 Issue 7

NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN

Bell 407 only: (Continued)

407 Configuration C - External Cargo Basket Installation (High Mounted Fixed):

AERO Design Ltd., Maintenance Instructions MI606.01 Revision 2, dated 19 July 2004, or later accepted revision, are required with this installation.

Basis of Certification remains as defined in the applicable Type Certificate Data Sheets.

407 Configuration D - External Cargo Basket Installation (Low Mounted Quick Release):

Installation of Configuration A, External Attachment Provisions, is a prerequisite for installation of Configuration D, External Cargo Basket Installation. Installation of the Cargo Basket is to be completed in accordance with Transport Canada approved AERO Design Ltd., Document Control List DCL 701, Revision 3, dated 2 December 2008, or later approved revision. High skid gear is required for the basket installation. Placard required on the lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS701.90, Revision 2, dated 17 July 2008, or later approved revision is required with this installation.

AERO Design Ltd., Instructions for Continued Airworthiness ICA 698.90, Revision 1, dated 9 November 2006, or later accepted revision is required with this installation.

Basis of Certification is defined by the applicable Type Certificate Data Sheets.

Bell 407 Configuration E - External Cargo Basket Installation High Mounted Quick Release

Installation of Configuration A, External Attachment Provisions, is a prerequisite for installation of Configuration E, External Cargo Basket Installation. Installation of the Cargo Basket is to be completed in accordance with Transport Canada approved AERO Design Ltd., Document Control List DCL 766-1, Revision 0, dated 26 September 2007, or later approved revision. Approved emergency exit "push out" windows or an approved sliding door are required on the side of the helicopter that the basket is installed on if passengers are to be carried. Placard required on the lid.

(continued on page 4)



Number: SH00-48 Issue 7

NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS766.91, Revision 0, dated 30 October 2007, or later approved revision, is required with this installation.

AERO Design Ltd., Instructions for Continued Airworthiness ICA 766.90, Revision 0, dated 26 September 2007, or later accepted revision, is required with this installation.

Basis of Certification is defined by the applicable Type Certificate Data Sheets.

Bell 206L, L-1, L-3, L-4 only:

206L Series Configuration A - External Attachment Provisions Only:

Installation of the External Attachment Provisions is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 493, Revision 6, dated 10 May 2006, or later approved revision.

Transport Canada approved AERO Design Ltd. Flight Manual Supplement FMS 493.01, Revision 0, dated 19 May 2002, or later approved revision, is required with this installation.

AERO Design Ltd. Instructions for Continued Airworthiness ICA 493.90, Revision 0, dated 4 May 2006, or later Transport Canada accepted revision, is required with this installation.

External Attachment Provisions installed in accordance with DCL493 may remain installed if the basket installation is removed.

Basis of Certification is as defined in the Type Certificate Data Sheets, plus FAR27 at amendment 27-24.

(continued on page 5)



Number: SH00-48 Issue 7

NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

206L Series Configuration B - External Cargo Basket (Low Mounted):

Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration B, External Cargo Basket installation. Installation of the cargo basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL492, Revision 6, dated 28 September 2007, or later approved revision. High skid gear is required for the basket installation. Placard is required on the basket lid.

Transport Canada approved AERO Design Ltd., Flight Manual Supplement FMS 492.01, Revision 2, dated 28 September 2007, or later approved revision, is required with this installation.

AERO Design Ltd., Instructions for Continued Airworthiness ICA492.90, Revision 1, dated 28 September 2007, or later Transport Canada accepted revision, is required with this installation.

Basis of Certification is as defined in the Type Certificate Data Sheets, plus FAR27 at amendment 27-24.

206L Series Configuration C - External Cargo Basket Installation (Low Mounted Quick Release):

Installation of Configuration A, External Attachment Provisions, is a prerequisite for installation of Configuration C, External Cargo Basket Installation. Installation of the Cargo Basket is to be completed in accordance with Transport Canada approved AERO Design Ltd., Document Control List DCL 702, Revision 2, dated 2 December 2008, or later approved revision. High skid gear is required for the basket installation. Placard required on the lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS702.90, Revision 2, dated 17 July 2008, or later approved revision is required with this installation.

AERO Design Ltd., Instructions for Continued Airworthiness ICA 698.90, Revision 1, dated 9 November 2006, or later accepted revision is required with this installation.

Basis of Certification is defined by the applicable Type Certificate Data Sheets, plus FAR 27 amendment 27-30.

(continued on page 6)



Number: SH00-48 Issue 7

NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

206L Series Configuration D - External Cargo Basket Installation (High Mounted Quick Release):

Installation of Configuration A External Attachment Provisions is a prerequisite for installation of Configuration D. External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada Approved Aero Design Ltd. Document Control List DCL766-1, Revision 0, dated 26 September 2007, or later approved revision. Approved emergency exit "push-out" windows or an approved sliding door are required on the side of the helicopter that the basket is installed on if passengers are to be carried. Placard is required on the basket lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS 766.92, Revision 0, dated 30 October 2007, is required with this installation.

Transport Canada accepted, AERO Design Ltd., Instructions for Continued Airworthiness ICA 766.90, Revision 0, dated 26 September 2007, is required with this installation.

Basis of Certification is defined by the applicable Type Certificate Data Sheets, plus FAR 27 at amendment 27-30 (Bell 407 basis).

All Models (Bell 206L series and 407)

Auxiliary Step Installation:

Installation of the Auxiliary Step is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL623, Revision 0, dated 13 January 2005, or later approved revision.

The auxiliary step is optional and is not required with installations listed above.

Auxiliary Step installed in accordance with DCL623 may remain installed if the basket installation is removed.

Basis of Certification is as defined in the Type Certificate Data Sheets, plus FAR 27 amendment 27-30.

(continued on page 7)



Number: SH00-48 Issue 7

NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

All Models (Bell 206L series and 407) Cargo Basket Modifications:

REV. 6 ADDS "WHEEL"

ALL INTERVENING

REVISIONS ADD

MODS APPLICABLE TO Modifications to the cargo basket configurations are eligible in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL704, Revision 7, dated 10 May 2006, or later

Quick Release Step Installation:

Installation of the Low Mounted Quick Release Cargo Basket (407 - Configuration D; 206L -Configuration C) is required prior to installation of the Quick Release Step. Installation of the Quick Release Step is to be completed in accordance with Transport Canada approved, AERO Design Ltd. Document Control List DCL800-2, Rev. 0, dated 2 December 2008, or later approved revision.

The Quick Release Step is optional and is not required with the Quick Release Cargo Basket Installation. The Quick Release Step may be stowed in the inboard position on the mounting provisions when the Quick Release Cargo Basket is installed.

approved revision. Eligibility limitations are noted on the drawings.

AERO Design Ltd. Instructions for Continued Airworthiness ICA 800.90, Revision 2, dated 2 December 2008, or later accepted revision, is required with this installation.

Basis of Certification is as defined by the applicable Type Certificate Data Sheets, plus FAR 27, amendment 27-30.

- End -

COPIE

Steven Fahey

From:

"Steven Fahey" <steve@aerodesign.ca>

To:

"Staal, Jack" <STAALJ@tc.gc.ca>

Cc:

"Dave Austen" <AustenD@tc.gc.ca>; "Ted Burgoin" <ted@aerodesign.ca>

Sent: Subject: Tuesday, October 05, 2010 4:54 PM Re: Outstanding FAA STC Applications

Jack,

We have several pending FAA STC applications and they are all stuck on something it seems. Dave Austen has been the #1 contact on all of these up to now, so if in doubt, ask him. The Destiny projects are particularly unusual.

Here's the list:

1 Aero Design:

Renewal of FAA STC for External Cargo Basket on Bell 206L/407 series (SH00-48) SR02253NY Application was submitted in april 2009.

We do not have access to this NAPA file, if it is C-09-0443

No information about this project for a long time.

Your comment that this was "cancelled out of the blue" has me VERY CONCERNED because we have requested updates on that project many times, and nobody mentioned this. Please check carefully and let's get Kyle on the phone if there is a big problem.

2 Destiny:

Issue a new FAA STC for Remote Guidance System on Bell 205/212/412 series (SH10-1) Application for FAA STC was submitted in February 2010.

I do not know what your NAPA file number is for this. I do not have a signed copy of the application form. The FAA file number is ST6627NY-R

I receive a list of queries from the FAA dated in May - but it only reached me in July after I asked for an update then.

Not a peep since.

Recently we needed to add the 412 to the approval. This was done on the TCCA STC (SH10-1 issue 2) ...and it would be worthwhile considering whether we should amend the FAA STC application.

This may warrant a phone call to Kyle Williams to find out where the application is at first, then decide if it is safe to slip in a change.

3 Destiny:

Issue a new FAA STC for Remote Guidance System on Eurocopter AS350/355 series (SH10-8) Application for FAA STC was submitted in May 2010.

Your NAPA file number is for this is C-10-0375. Another file to which I do not have access thru NDWL.

The FAA file number is ST6733NY-R

Recently it came to light that the AS355F2 had been omitted from SH10-8, and it has been added to issue 2.

Soon after, we got a query from the FAA on this file, and I sent my reply through Dave Austen. This one I assume is currently being examined. It probably helped that we sent in the addition of the AS355F2.

Steven Fahey steve@aerodesign.ca

Aero Design Ltd. 2013 - 39th Avenue NE Calgary, Alberta, Canada T2E 6R7

tel: (403) 250-8027 fax: (403) 250-8333 www.aerodesign.ca

---- Original Message -----

From: Staal, Jack
To: 'Steven Fahey'

Sent: Tuesday, October 05, 2010 12:33 PM

Subject: RE: FW: Outstanding FAA STC Applications

Steve,

NAPA number is C-09-0443

JAck

From: Steven Fahey [mailto:steve@aerodesign.ca]

Sent: Tuesday, October 05, 2010 1:33 PM

To: Staal, Jack

Subject: Re: FW: Outstanding FAA STC Applications

The FAA have been playing games with it for a very long time.

You need a chat with Dave over the tortured history.

The STC revision was sort-of cancelled, but the FAA are supposed to be reviewing an application for a new STC project in its stead. So I really should be asking for an update on the "new" FAA STC application, but from here I cannot figure out what NAPA file number Dave assigned for that one.

Steve

---- Original Message -----

From: Staal, Jack
To: 'Steven Fahey'

Sent: Tuesday, October 05, 2010 9:51 AM

Subject: RE: FW: Outstanding FAA STC Applications

Steven,

The FAA out of the blue cancelled the project, notified last April, with option to resubmit. That was a first for me.

I need to review where the short comings are and resubmit.

Jack

J.H. (Jack) Staal

Aircraft Certification Technologist | Technologue, Certification des aeronefs.

Prairie and Northern Region | Region des Prairies et du Nord

Telephone | telephone: (780)495-5227 Facsimilie | telecopier: (780)495-7963 Email | courriel: jack.staal@tc.gc.ca TTY / ATS: 1-888-675-6863

Transport Canada | Transports Canada

1100- 9700, Jasper Avenue | avenue Jasper (RAED)

Edmonton, AB T5J 4E6

Government of Canada | Gouvernement du Canada

To provide feedback to TCCA, use CAIRS. See: < http://www.tc.gc.ca/CivilAviation/ManagementServices/QA/cairs.htm

Pour tout commentaire a TCAC, utilizer CAIRS. Voir < http://www.tc.gc.ca/AviationCivile/ServicesdeGestion/AQ/ssqac.htm>

From: Steven Fahey [mailto:steve@aerodesign.ca] **Sent:** Thursday, September 30, 2010 12:06 PM

To: Staal, Jack

Subject: Re: FW: Outstanding FAA STC Applications

Jack,

Have you received any contact from the FAA on this application?

Steven

----- Original Message -----From: <u>Steven Fahey</u> To: <u>Dave Austen</u>

Sent: Thursday, September 30, 2010 9:13 AM

Subject: Re: FW: Outstanding FAA STC Applications

Dave,

Could you find out if this was carried through? The revision to SR02253NY has been in the works for about 18 months.

Steven

----- Original Message ----From: kyle.williams@faa.gov

To: Austen, David

Cc: steve@aerodesign.ca

Sent: Thursday, August 19, 2010 5:32 AM

Subject: Re: FW: Outstanding FAA STC Applications

Good Morning David,

Just saw your message below. I'm working from home today but will try to provide a status to you later today.

Best Regards,

Kyle Williams New York Aircraft Certification Office 1600 Stewart Avenue, Suite 410 Westbury, New York 11590 ANE-172 Aviation Safety Engineer

Office: 516-228-7347

From:

"Austen, David" < david.austen@tc.gc.ca >

To:

Kyle Williams/AEA/FAA@FAA

Cc:

<steve@aerodesign.ca>

Date:

08/18/2010 01:30 PM

Subject:

FW: Outstanding FAA STC Applications

Hi Kyle:

Could you do me a favour and see where these projects are at? I realize that not all are under your personal management portfolio, but we sure would appreciate an update from your folks.

We do know that SH10-8 is active at this point.

Cheers!

David Austen, FEC, P.Eng. A/Regional Superintendent | Surintendant Regional Aircraft Certification | Certification des aeronefs (780) 495-5226 | Facs/telec: (780) 495 7963

From: Steven Fahey [mailto:steve@aerodesign.ca]

Sent: 18 August, 2010 11:16 AM

To: Austen, David

Subject: Outstanding FAA STC Applications

Dave,

It's been brought to my attention that we have not heard a response to our application for a **revision to STC SR02253NY** in a long time.

The application was sent in May 2009.

Also on their plate are applications for:

Aero Design Steps on the AS350 series (**SH08-16**)

Destiny Nav Tech. Tracking system on Bell 205/212 (**SH10-1**) and AS350 series (**SH10-8**)

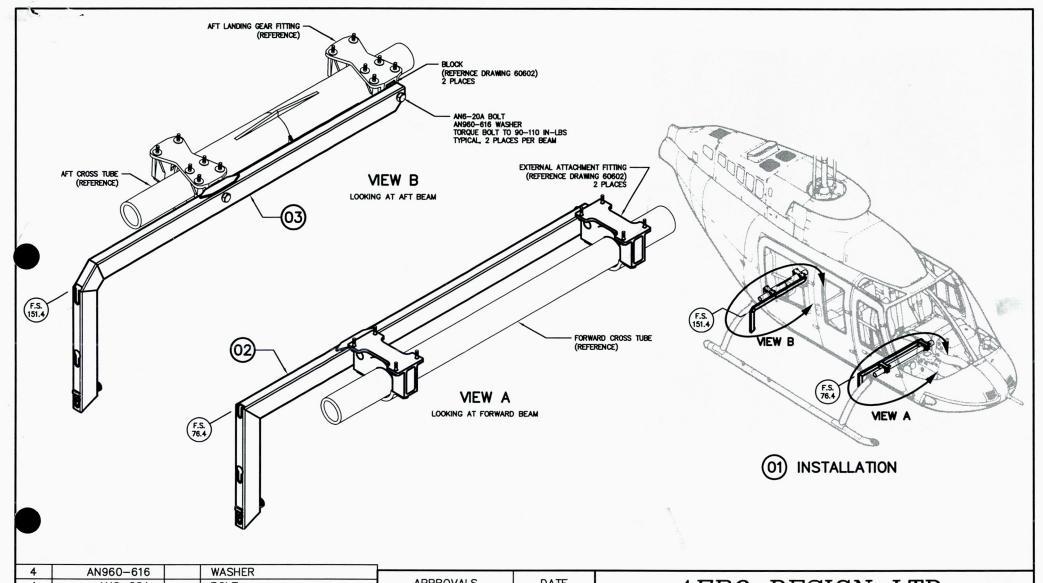
Thanks for looking into this.

Steven Fahey

steve@aerodesign.ca
Aero Design Ltd.
2013 - 39th Avenue NE
Calgary, Alberta, Canada
T2E 6R7
tel: (403) 250-8027
fax: (403) 250-8333
www.aerodesign.ca

FORM AE-100

STATEMENT OF		E OF AIRC	NSPORT RAFT OR AIRCRAFT ESS REQUIREMENTS	AE-100 No.: Initial Issue Date: Revision:	AE698-2 25 May, 2006		
Aircraft Mfgr: Aircraft Model: Registration:	Bell 206L Series, All Eligible	407	Model Type Airplane Helicopter Appliance	Revision Date: Approval No.: Delegation No.:	25 March, 2009 SH00-48 290M		
			Appliance	Delegate Name: Classification of Designee: Employer:	E. Bur	goin Design Ltd.	
		LI	ST OF APPROVED REPO	RTS AND DATA			
Document I	Number		Docum	ent Title		Compliance Status	
DCL698-2	Revision 3	Documen	t Control List and all docum	nents referred to therein		Glatas	
69830 69831	Revision 3 Revision 3		Beam Fabrication Fabrication				
			DATA APPROVED BY	TRANSPORT CANADA			
			CERTIFICATIO	N -			
UNDER THE AUTHORITY VESTED IN ME BY THE DEPARTMENT OF TRANSPORT, I HEREBY CERTIFY THAT THE DATA LISTED ABOVE AND ON THE ATTACHED SHEETS NUMBERED NII HAVE BEEN EXAMINED IN ACCORDANCE WITH ESTABLISHED PROCEDURES AND FOUND TO COMPLY, TO THE BEST OF MY KNOWLEDGE AND BELIEF WITH THE PERTINENT COMPLIANCE REQUIRMENTS.							
I THEREFORE	THEREFORE [□] RECOMMEND FOR APPROVAL OF THESE DATA						
	THEREFORE [□] RECOMMEND FOR APPROVAL OF THESE DATA [☒] APPROVE THESE DATA E. Burgoin, DAR 29000						



4	AN960-616		WASHER	1	
	AN900-010		WASHER	1	
4	AN6-20A		BOLT		
1	73031-02	03	AFT BEAM (ALTERNATE)	D	
- 1	69833-01	03	AFT BEAM (ALTERNATE)	1	
1	69831-02	03	AFT BEAM (ALTERNATE)	С	
1	69831-01	03	AFT BEAM	L	
1	73030-02	02	FORWARD BEAM (ALTERNATE)	1	
1	69832-01	02	FORWARD BEAM (ALTERNATE)	1	
1	69830-02	02	FORWARD BEAM (ALTERNATE)	1	
1	69830-01	02	FORWARD BEAM	1	
	70102-01	01	INSTALLATION]	
01	PART NO.	ITEM	DESCRIPTION		
QTY.	LIST OF MATERIALS				

APPROVALS	DATE			
DRAWN: JEFF CLARKE	15 JULY 2008			
CHECKED: E. BURGOIN				

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ON:

DECIMALS ANGLES $X.XXX \pm 0.010 \pm 1/2^{\circ}$

x.xx ±0.03 x.x ±0.1

AERO DESIGN LTD.

CONSULTING ENGINEERS, TRANSPORT CANADA APPROVALS, DAR 290M 2013 - 39TH AVENUE N.E., CALGARY, ALBERTA, CANADA, T2E 6R7 tel: (403) 250-8027 fax: (403) 250-8333 aerodesign@telusplanet.net

BELL 407 QUICK RELEASE MOUNTING PROVISIONS PROVISIONS INSTALLATION

NOT TO SCALE	DWG. SIZE	DWG. NO.	REV.
SHEET 1 OF 2	A4	70102	1

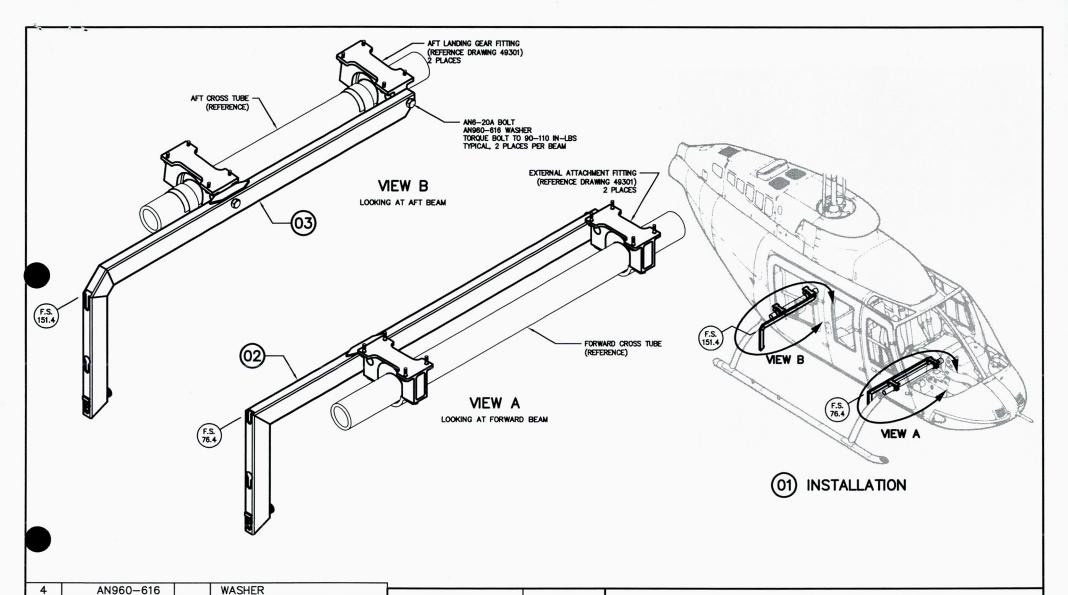
REV.	DESCRIPTION OF CHANGE	INITIALS	DATE
0	INITIAL ISSUE	BJC	JULY 15/08
1	ADD ELIGIBLE BEAMS	BJC	JULY 29/09

NOTES:

- 1. EXTERNAL ATTACHMENT PROVISIONS INSTALLED IN ACCORDANCE WITH DRAWING 60602 IS MANDATORY PREREQUISITE FOR THIS INSTALLATION.
- 2. HIGH SKID GEAR INSTALLATION IS MANDATORY PREREQUISITE FOR THIS INSTALLATION.
- 3. BEAMS 73030-01 AND 73031-01 ARE USED FOR INSTALLATION OF EQUIPMENT ON BOTH LEFT AND RIGHT SIDES. PROVISIONS FOR INSTALLING THE QUICK RELEASE CARGO BASKET (69810-01) ON THE RIGHT SIDE IS PROVIDED. WEIGHT AND BALANCE SHOWN DOES NOT APPLY.

	WEIGHT	AND	BALANC	Œ		
ITEM	DESCRIPTION	WEIGHT (LB)	LONGIT ARM (IN)	TUDINAL MOMENT (LB-IN)	LAT ARM (IN)	ERAL MOMENT (LB-IN)
02	FORWARD BEAM (69830-01/-02)	10.1	76.4	771.6	10.9	110.1
03	AFT BEAM (69831-01/-02)	9.8	151.4	1483.7	12.6	123.5
01	MOUNTING PROVISIONS INSTALLATION	19.9	113.3	2255.3	11.7	233.6
02	FORWARD BEAM (69832-01)	5.0	76.4	382.0	10.9	54.5
03	AFT BEAM (69833-01)	5.0	151.4	757.0	12.6	63.0
01	MOUNTING PROVISIONS INSTALLATION	10.0	113.9	1139.0	11.7	117.5

THIS DIS PROCESS PROCE	APPROVALS	DATE	AERO DESIGN LTD.				
RAWING PRIETAF Y PORTI OR DU ACTURI DESIGN DESIGN ENCE, " LTD. H	DRAWN: JEFF CLARKE	15 JULY 2008	CONSULTING ENGINEERS, TRANSPORT CANADA APPROVALS, DAR 290M				
CONTAIN Y TO A YY TO A YY TO A YY TO A YY ON THE LTD. B HE REC ARMLESS OR THE	CHECKED: E. BURGOIN		2013 — 39TH AVENUE N.E., CALGARY, ALBERTA, CANADA, T2E 6R7 tel: (403) 250-8027 fax: (403) 250-8333 aerodesign€telusplanet.net				
NOTICE —— SOMEORIATION AN ENO DESIGN LID. ENO DESIGN LID. ON ANY MANNER, HOUT THE WRITTEN Y ACCEPTING THIS SHENT AGREES TO SHE	UNLESS OTHERWISE SPECIFIE UNLESS OTHERWISE SPECIFIE DIMENSIONS ARE IN INCHES TOLERANCES ON: THE WATER BY A STORY DECIMALS ANGLE		BELL 407 QUICK RELEASE MOUNTING PROVISIONS PROVISIONS INSTALLATION				
ID DATA THIS DR THIS DR NOR US CONSE CONSE DRAWN DRAWN DRAWN NOR MISU NIED TH	x.xxx ±0.010 x.xx ±0.03	±1/2°	NOT TO SCALE DWG. SIZE DWG. NO.				
WHICH AWING, DUCED, ED FOR NT OF FOR AERO SE, OF IEREON.	x.x ±0.1		SHEET 2 OF 2 A4 70102 1				



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	4	AN6-20A		BOLT	APPROVALS	DATE	l					
	1	73031-02	03	AFT BEAM (ALTERNATE)	DRAWN: JEFF CLARKE	15 UUV 0000						
	1	69833-01	03	AFT BEAM (ALTERNATE)	JEFF CLARKE	15 JULY 2008	Combolina Brandhito, Intribi our Chamba in 1100 into					
	1	69831-02	03	AFT BEAM (ALTERNATE)	CHECKED: E. BURGOIN		2013 - 39TH AVENUE N.E., CALGARY, ALBERTA, CANADA, T2E 6R7					
	1	69831-01	03	AFT BEAM	1 E. BURGUIN		tel: (403) 250-8027 fax: (403) 250-8333 aerodesign@telusplanet.net					
	1	73030-02	02	FORWARD BEAM (ALTERNATE)	UNLESS OTHERWISE	SPECIFIED	BELL 206L SERIES					
	1	69832-01	02	FORWARD BEAM (ALTERNATE)	DIMENSIONS ARE IN INCHES.		QUICK RELEASE MOUNTING PROVISIONS					
	1	69830-02	02	FORWARD BEAM (ALTERNATE)								
	1	69830-01	02	FORWARD BEAM	DECIMALS	ANGLES PROVISIONS INSTALLATION						
		70202-01	01	INSTALLATION	x.xxx ±0.010	±1/2°	DWG. SIZE DWG. NO. REV.					
Г	01	PART NO.	ITEM	DESCRIPTION	x.xx ±0.03	11/2	NOT TO SCALE					
\vdash	-				x.x ±0.1		SHFFT 1 OF 2 A4 70202 1					
	YTÇ.	LIST OF MATERIALS			SHEET 1 OF 2 A4 (UCUC I							

REV.	DESCRIPTION OF CHANGE	INITIALS	DATE
0	INITIAL ISSUE	BJC	JULY 15/08
1	ADD ELIGIBLE BEAMS	BJC	JULY 29/09

NOTES:

- 1. EXTERNAL ATTACHMENT PROVISIONS INSTALLED IN ACCORDANCE WITH DRAWING 49301 IS MANDATORY PREREQUISITE FOR THIS INSTALLATION.
- 2. HIGH SKID GEAR INSTALLATION IS MANDATORY PREREQUISITE FOR THIS INSTALLATION.
- 3. BEAMS 73030-01 AND 73031-01 ARE USED FOR INSTALLATION OF EQUIPMENT ON BOTH LEFT AND RIGHT SIDES. PROVISIONS FOR INSTALLING THE QUICK RELEASE CARGO BASKET (69810-01) ON THE RIGHT SIDE IS PROVIDED. WEIGHT AND BALANCE SHOWN DOES NOT APPLY.

	WEIGHT	AND	BALANCE			
ITEM	DESCRIPTION	WEIGHT (LB)	LONGIT ARM (IN)	TUDINAL MOMENT (LB-IN)	LAT ARM (IN)	ERAL MOMENT (LB-IN)
02	FORWARD BEAM (69830-01/-02)	10.1	76.4	771.6	10.9	110.1
03	AFT BEAM (69831-01/-02) MOUNTING PROVISIONS INSTALLATION	9.8	151.4 113.3	1483.7 2255.3	12.6 11.7	123.5 233.6
02	FORWARD BEAM (69832-01)	5.0	76.4	382.0	10.9	54.5
03	AFT BEAM (69833-01)	5.0	151.4	757.0	12.6	63.0
01	MOUNTING PROVISIONS INSTALLATION	10.0	113.9	1139.0	11.7	117.5

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RAWING PRIETAL PROTIT OR DU ACTURI DESIGN ENCE ENCE LTD. H	DRAWN: JEFF CLARKE	15 JULY 2008	CONSULTING EN	RANSPORT CANADA API	PROVALS, D			
CONTAIL RY TO A RY LTD. E RE THE RE ARMLES OR THE	CHECKED: E. BURGOIN		2013 — 39TH AVENUE N.E., CALGARY, ALBERTA, CANADA, T2E 6R7 tel: (403) 250-8027 fax: (403) 250-8333 aerodesign@telusplanet.net					
NOTICE —— NOTICE —— S INFORMATION AN SEN DESIGN LTD. BEO DESIGN LTD. OUT THE WRITTEN Y ACCEPTING THIS STROM THE USE, INFORMATION CONTI	UNLESS OTHERWISE DIMENSIONS ARE IN TOLERANCES DECIMALS	BELL 206L SERIES QUICK RELEASE MOUNTING PROVISIONS PROVISIONS INSTALLATION						
REPRINCE NOR US DRAW O HOLL ON MISON WISD 1	X.XXX ±0.010 X.XX ±0.03	±1/2°	NOT TO SCALE	DWG. SIZE	DWG. NO.	REV.		
A WHICH RAWING, ODUCED, SED FOR ENT OF ING FOR O AERO USE, OF HEREON.	x.x ±0.1		SHEET 2 OF 2	A4	70202	1		

0 253/8 25 27/2. Deflect (Minon) 51 bags. V 0 failed @ 55 Bags. 51 bays

1

DRAG LOAD ON BASKET

 $l_{basket} := 75.75 \cdot in$

Length of basket.

 $w_{basket} := 22 \cdot in$

Width of basket.

 $h_{basket} := 16 \cdot in$

Height of basket.

 $A_f := w_{basket} \cdot h_{basket}$

$$A_f = 352 \text{ in}^2$$

Frontal Area of basket.

$$A_p := l_{basket} \cdot w_{basket}$$

$$A_{\rm p} = 1666 \, {\rm in}^2$$

Planar Area of basket.

$$\frac{l_{\text{basket}}}{w} = 3.4$$

Fineness ratio of basket

 $C_{Do} := 1.6$

Drag Coefficient of Basket, (overestimated) (Ref. Hoerner, Fluid Dynamic Drag, Figure 22).

$$\rho := 0.002378 \cdot \frac{slug}{ft^3}$$

Density of air at Sea Level.

 $V_{ne} := 140 \cdot knots$

Never-Exceed-Speed of Bell 407. (Ref. Bell 407 Flight Manual.)

$$V_d := \frac{V_{ne}}{0.9}$$

$$V_d = 156 \text{ knots}$$

Design Dive Speed of Bell 407

$$Drag := \frac{\rho}{2} \cdot V_d^2 \cdot A_f C_{Do}$$

Drag on basket.

LIMIT

$$p_{drag_ult} := Drag \cdot n_{sf} \cdot n_{ff}$$

$$p_{drag_ult} = 553 lbf$$

Ultimate applied Drag load on basket.

$$p_{drag_test} := Drag \cdot n_{sf}$$

$$p_{drag test} = 481 lbf$$

Ultimate Drag load on basket in Static Test.

$$AC_{drag} := 38.5 \cdot in$$

Lateral Aerodynamic Center of basket.

$$p_{drag_test_beam} = 240 \, lbf$$

Ultimate Drag load on beam in Static Test.

Quick Release Cargo Basket

$$W_{basket} := 45 \cdot lbf$$

Weight of basket

$$W_{cargo} := 200 \cdot lbf$$

Weight of cargo (max)

$$W_{beam} := 6 \cdot lbf$$

Weight of beam (each)

$$P_{\text{man_lim}} := (W_{\text{basket}} + W_{\text{cargo}}) \cdot n_{\text{man_lim}}$$

$$P_{man lim} = 858 lbf$$

Limit maneuvering load due to cargo and basket

$$P_{man ult} := P_{man lim} \cdot n_{sf}$$

$$P_{man\ ult} = 1286 \, lbf$$

Ultimate maneuvering load due to cargo and basket

$$P_{man lim test} := P_{man lim} - 30 \cdot lbf$$

$$P_{man\ lim\ test} = 828\ lbf$$

Limit load for test

$$P_{man\ ult\ test} := P_{man\ ult} - 30 \cdot lbf$$

$$P_{man ult test} = 1256 lbf$$

Ultimate load for test

(225)

$$P_{\text{man_lim}} := (W_{\text{basket}} + W_{\text{cargo}}) \cdot n_{\text{man_lim}}$$

$$P_{\text{man_lim}} = 1033 \, \text{lbf}$$

Limit maneuvering load due to cargo and basket

$$P_{man_ult} := P_{man_lim} \cdot n_{sf}$$

 $P_{man ult} = 1549 lbf$

1418

Ultimate maneuvering load due to cargo and basket

$$\underbrace{P_{man_lim_test}}_{:=} P_{man_lim} - 30 \cdot lbf$$

$$P_{\text{man lim test}} = 1003 \, \text{lbf}$$

915

Limit load for test

$$P_{man_ult_test} = 1519 \, lbf$$

1318

AERO Design Ltd.

ENGINEERING REPORT ER698.05

BELL 206L SERIES, 407

QUICK RELEASE BEAMS LIGHT WALL MATERIAL

Prepared by: Jeff Clarke, CET

Approved by: E. Burgoin, P.Eng., DAR 290M

Revision 0, 29 July 2009

AERO Design Ltd.
Engineering Consultants
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TABLE OF CONTENTS

1.0	INTRODUCTION	3
2.0	REFERENCE TEXT	3
3.0	BASIS OF CERTIFICATION	3
4.0	APPLICABILITY OF AIRWORTHINESS DIRECTIVES	3
5.0	LOADS	4
5.1	Inertia Loads	5
5.2	Drag Load	6
6.0	STRUCTURAL COMPLIANCE	7
6.1	Limit Load – 200 lbs Cargo	7
6.2	Limit Load – 225 lbs Cargo	8
6.3	Ultimate Load – 200 lbs Cargo	10
6.4	Ultimate Load – 225 lbs Cargo	10
6.5	Material Consideration	12

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1.0 INTRODUCTION

This report is to document the next generation of quick release mounting beams. It has been determined through testing of a similar configuration that a lighter wall tube may be sufficient to carry ultimate loads without failure. Overall construction of the beams remains the same.

2.0 REFERENCE TEXT

AERO Design Ltd. ER698.01 ER698.02, TP698.03, ER698.04

3.0 BASIS OF CERTIFICATION

TCDS H-92 (Highest of Bell 206L series and 407):

FAR part 27, dated October 2, 1964 Amendment 27-1 through 27-30; Paragraph 27.561(b)(3) at Amdt 27-24; Section 27.563 at Amdt. 27-25; Section 27.785 at Amdt 27-24; Section 27.1093 at amendment 27-8; and Section 27.173 and 27.175 at amendment 27-1.

Exemptions to FAR 27 are the deletion of sections: 27.562, 27.1195, and 27.952(b)(1).

This report demonstrates that the installation of the Light Wall Quick Release Beams complies with the original basis of certification.

4.0 APPLICABILITY OF AIRWORTHINESS DIRECTIVES

Airworthiness Directives applicable to the Bell 206L Series and 407 were reviewed, and none were found to affect this project.

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5.0 LOADS

BELL 407 HELICOPTER LOAD FACTORS, FAR 27:

FAR 27.561(b)(3)

Ultimate Upward Emergency Landing Load Factor: $n_{e-up} := 1.5$

Ultimate Forward Emergency Landing Load Factor: $n_{e-fwd} = 4.0$

Ultimate Sideward Emergency Landing Load Factor: $n_{e\ side} \approx 2.0$

Ultimate Downward Emergency Landing Load Factor: $n_{e-down} = 4.0$

FAR 27.625 Fitting Factor (does not apply to articles being tested): $n_{ff} = 1.15$

FAR 27.303 Safety Factor: $n_{sf} = 1.5$

FAR 27.337(a)

Limit Positive Maneuvering LoadFactor: n man = 3.5

 $n_{man\ ult} = n_{man} \cdot n_{sf}$ Ultimate Positive Maneuvering LoadFactor: $n_{man\ ult} = 5.25$

 $n_{man neg u} = n_{man n} \cdot n_{sf}$ Ultimate Negative Maneuvering LoadFactor: $n_{man neg u} = -1.5$

CRITICAL ULTIMATE LOAD FACTORS:

Downward: Ultimate Positive Maneuvering LoadFactor: $n_{man-ult} = 5.25$

Forward: Ultimate Forward Emergency Landing Load Factor: $n_{e\ fwd} = 4.00$

Sideward: Ultimate Sideward Emergency Landing Load Factor: $n_{e \text{ side}} = 2.00$

Upward: Ultimate Upward Emergency Landing Load Factor: $n_{e} = 1.50$

Note: The basket is mounted below and to one side of the cabin. Forward deflection or failure in the emergency landing condition does not endanger the occupants. Likewise, Sideward and Upward deflection or failure of the basket in the emergency landing condition do not endanger the occupants.

Sideward and Upward Load Factors are used in the tests to ensure that the lid of the basket does not open in flight.

5.1 Inertia Loads

The positive maneuvering load is the only critical condition.

$$W_{basket} := 45 \cdot lbf$$

Weight of basket

$$W_{cargo} := 200 \, lbf$$

Weight of cargo (max)

$$W_{beam} := 6 \cdot lbf$$

Weight of beam (each)

$$P_{\text{man lim}} := (W_{\text{basket}} + W_{\text{cargo}}) \cdot n_{\text{man lim}}$$

$$P_{\text{man_lim}} = 8581bf$$

Limit maneuvering load due to cargo and basket

$$P_{man_ult} := P_{man_lim} {\cdot} n_{sf}$$

$$P_{man\ ult} = 1286lbf$$

Ultimate maneuvering load due to cargo and basket

The basket will also be tested to see if the load capacity can be increased to 225 lbs.

$$W_{cargo} := 225 \cdot lbf$$

Weight of cargo (max)

$$P_{man lim} := (W_{basket} + W_{cargo}) \cdot n_{man lim}$$

$$P_{\text{man lim}} = 945lbf$$

Limit maneuvering load due to cargo and basket

$$P_{man ult} := P_{man lim} \cdot n_{sf}$$

$$P_{man_ult} = 1418lbf$$

Ultimate maneuvering load due to cargo and basket

5.2 Drag Load

$$l_{basket} := 75.75 \, in$$

Length of basket.

$$w_{basket} := 22 \cdot in$$

Width of basket.

$$h_{basket} := 16 \cdot in$$

Height of basket.

$$A_f := w_{basket} \cdot h_{basket}$$

$$A_f = 352 in^2$$

Frontal Area of basket.

$$A_p := I_{basket} \cdot w_{basket}$$

$$A_p = 1666in^2$$

Planar Area of basket.

$$\frac{l_{basket}}{w_{basket}} = 3.4$$

Fineness ratio of basket

$$C_{Do} := 1.6$$

Drag Coefficient of Basket, (overestimated) (Ref. Hoerner, Fluid Dynamic Drag, Figure 22).

$$\rho := 0.002378 \frac{slug}{ft^3}$$

Density of air at Sea Level.

 $V_{ne} := 140 \, knots$

Never-Exceed-Speed of Bell 407. (Ref. Bell 407 Flight Manual.)

$$V_d := \frac{V_{ne}}{0.9}$$

 $V_d = 156$ knots

Design Dive Speed of Bell 407

$$P_{drag_lim} := \frac{\rho}{2} \cdot V_d^2 \cdot A_f \cdot C_{Do}$$

$$P_{drag_lim} = 321lbf$$

Limit Drag load on basket.

$$P_{drag_ult} := P_{drag_lim} \cdot n_{sf}$$

$$P_{drag\ ult} = 481lbf$$

Ultimate Drag load on basket.

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6.0 STRUCTURAL COMPLIANCE

Structural compliance is demonstrated by test. The entire cargo basket configuration is tested. A jig simulating the helicopter attachments was fabricated. A pair of quick release beams was fabricated in accordance with drawing 69832 and 69833. The beams were mounted on the jig, and a basket body fabricated in accordance with drawing 69811 was installed on the beams.

The maneuvering load is applied by stacking bags of lead shot (25 lbs each) evenly over the bottom of the basket. The drag load is applied by pulling on a piece of plywood spanning the front face of the basket with a come-along attached to a load cell.

6.1 Limit Load – 200 lbs Cargo

The lead shot required to apply the downward maneuvering load can be reduced by the weight of the basket body since it applies 1g down. The basket weighs 30 lbs.

$$P_{man lim} = 858lbf$$

Limit maneuvering load due to cargo and basket

$$P_{man lim}$$
 test := $P_{man lim} - 30 \cdot lbf$

$$P_{man\ lim}$$
 $test = 8281bf$

Limit load for test

The basket was loaded with 34 bags of lead shot (850 lbs total), and pulled 340 lbs.

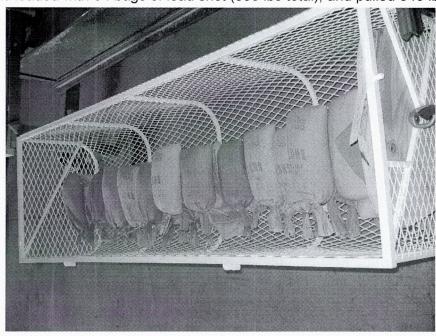


Figure 6.1.1 – Limit Maneuvering Load – 200 lbs Cargo

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Figure 6.1.2 – Limit Drag Load

The loads were applied for more than 3 seconds. The loads were removed and the basket and beams checked for permanent deformation. There was no deformation found.

6.2 Limit Load – 225 lbs Cargo

The lead shot required to apply the downward maneuvering load can be reduced by the weight of the basket body since it applies 1g down. The basket weighs 30 lbs.

$$P_{man lim} = 945lbf$$

Limit maneuvering load due to cargo and basket

$$P_{man_lim_test} := P_{man_lim} - 30 \cdot lbf$$

$$P_{man\ lim\ test} = 915lbf$$

Limit load for test

The basket was loaded with 37 bags of lead shot (925 lbs), and pulled 340 lbs.

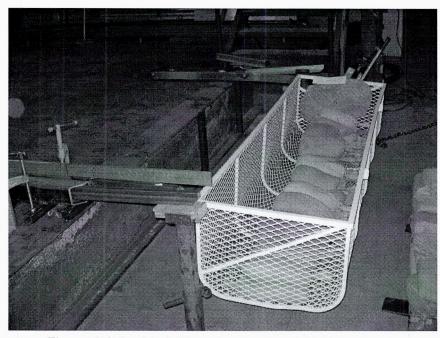


Figure 6.2.1 - Limit Maneuvering Load, 225 lbs Cargo

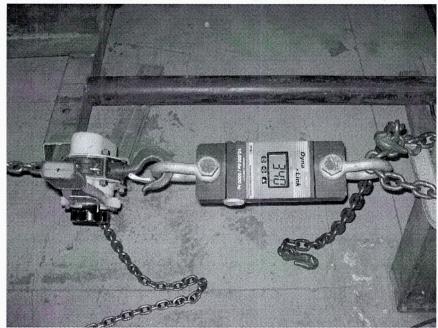


Figure 6.2.2 – Limit Drag Load

The loads were applied for more than 3 seconds. The loads were removed and the basket and beams checked for permanent deformation. There was none found.

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6.3 Ultimate Load – 200 lbs Cargo

The lead shot required to apply the downward maneuvering load can be reduced by the weight of the basket body since it applies 1g down. The basket weighs 30 lbs.

$$P_{man\ ult} = 1286lbf$$

Ultimate maneuvering load due to cargo and basket

$$P_{man_ult_test} := P_{man_ult} - 30 \cdot lbf$$

$$P_{man\ ult\ test} = 1256lbf$$

Ultimate load for test

The basket was loaded with 51 bags of lead shot (1275 lbs), and pulled 490 lbs.

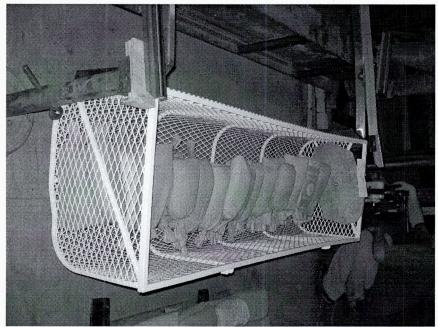


Figure 6.3.1 – Ultimate Maneuvering Load, 200 lbs Cargo

The batteries in the load cell died before a picture could be taken of the drag load.

The basket and beams sustained the ultimate maneuvering and drag loads for more than 3 seconds without failure. The light wall beams are acceptable for use with a basket rated at 200 lbs of cargo.

6.4 Ultimate Load – 225 lbs Cargo

The lead shot required to apply the downward maneuvering load can be reduced by the weight of the basket body since it applies 1g down. The basket weighs 30 lbs.

$$P_{man_ult} = 1418lbf$$

Ultimate maneuvering load due to cargo and basket

$$P_{man_ult_test} := P_{man_ult} - 30 \cdot lbf$$

$$P_{man_ult_test} = 1388lbf$$

Ultimate load for test

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The total load required is 56 bags of lead shot (1400 lbs). Loading continued from the previous condition (51 bags, 490 lbs drag). The beams carried 54 bags for more than 3 seconds, but failed after the 55th bag was placed in the basket.



Figure 6.4.1 – Maneuvering Load After Failure of Beams



Figure 6.4.2 - Aft Beam After Failure

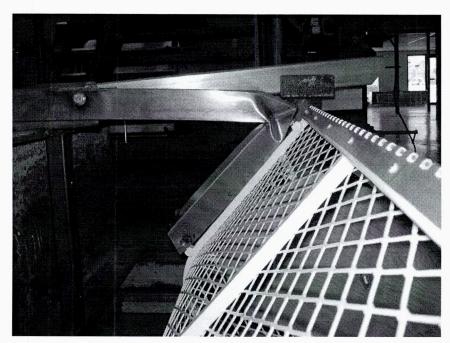


Figure 6.4.3 – Forward Beam After Failure

Since the beams failed before reaching ultimate load, the basket cannot be rated to carry 225 lbs cargo.

6.5 Material Consideration

The material is specified on drawings 69832 and 69833 as 1" \times 2" \times 0.065" wall tube (16 gauge). The documentation provided by the supplier specifies the material provide is 0.065" wall. Multiple samples were checked with a micrometer and the wall thickness was found to be 0.058" - 0.059". Since the drawing specifies 0.065" wall, and the parts tested are 0.058" wall, the test is conservative.

Steven Fahey

From:

"Austen, David" <david.austen@tc.gc.ca>

To: Sent: "Steven Fahey" <steve@aerodesign.ca> Wednesday, September 09, 2009 12:28 PM

Subject:

RE: Status of STC applications @ FAA

Hi Steve:

Nothing yet, so I just gave them a gentle nudge....

Cheers!

David Austen, FEC, P.Eng.

Aircraft Certification | Certification des aeronefs (780) 495-5226 | Facs/telec: (780) 495 7963 To provide feedback to TCCA, use CAIRS.

 $See: \underline{http://www.tc.gc.ca/CivilAviation/ManagementServices/QA/cairs.htm}$

Pour tout commentaire à TCAC, utilizer CAIRS.

Voir: http://www.tc.gc.ca/AviationCivile/ServicesdeGestion/AQ/ssqac.htm

From: Steven Fahey [mailto:steve@aerodesign.ca]

Sent: 09 September, 2009 2:28 PM

To: Austen, David

Subject: Re: Status of STC applications @ FAA

Hello Dave.

Have you heard back from them?

Steve

---- Original Message -----

From: Austen, David
To: Steven Fahey

Cc: Anthony.Troia@faa.gov; raymond.reinhardt@faa.gov

Sent: Monday, August 24, 2009 8:22 AM

Subject: RE: Status of STC applications @ FAA

Thx for the note, Steven.

Anthony:

Can we enlist your assistance to let us know where the following applications stand? I apologise for not having the FAA project number handy at this point.

Best regards,

David Austen, FEC, P.Eng.

Aircraft Certification | Certification des aeronefs

(780) 495-5226 | Facs/telec: (780) 495 7963 To provide feedback to TCCA, use CAIRS.

See: http://www.tc.gc.ca/CivilAviation/ManagementServices/QA/cairs.htm

Pour tout commentaire à TCAC, utilizer CAIRS.

Voir: http://www.tc.gc.ca/AviationCivile/ServicesdeGestion/AQ/ssgac.htm

From: Steven Fahey [mailto:steve@aerodesign.ca]

Sent: 21 August, 2009 12:00 PM

To: Austen, David

Subject: Status of STC applications @ FAA

Hi Dave,

I'd like to check in on any news from the FAA. We have several STC applications open:

Cargo baskets for the

Bell 212/205 SH07-56

(SROZGBONY) DONE!

Bell 206B

SH09-5

Bell 407/206L SH00-48

(SR02253NY)

MD600N

SH09-1

Destiny/Kodiak SH02-17 (SR01655NY)

Thanks,

Steven Fahey steve@aerodesign.ca Aero Design Ltd. 2013 - 39th Avenue NE Calgary, Alberta, Canada T2E 6R7

tel: (403) 250-8027 fax: (403) 250-8333 www.aerodesign.ca

2013 – 39 Avenue N.E., Calgary, Alberta, T2E 6R7

Tel: 403-250-8027 Fax: 403-250-8333 www.aerodesign.ca

29 April, 2009

Transport Canada Aircraft Certification Division 800-1601 Airport Road Calgary, Alberta T2E 6Z8

Attn: Jack Staal

TCCA File: SH00-48

Re: FAA STC Revision Application for Bell 407 & 206L series Helicopter Cargo Baskets

Jack,

Please forward the following documents to the appropriate office of the FAA:

FAA STC Application Form Modification Approval Request Application Form Transport Canada Supplemental Type Certificate (copy) FAA Supplemental Type Certificate (copy)	8110.12 MOD698 SH00-48 SR02253NY	Rev. 0 Issue 7 Apr.19/2006
Compliance Program	CP492 CP493 CP606 CP698 CP766 CP800-2	Rev. 3 Rev. 2 Rev. 0 Rev. 0 Rev. 0 Rev. 0
Document Control List (407 Provisions) Instructions for Continued Airworthiness Flight Manual Supplement Installation Drawing	DCL700 ICA 700.90 FMS 700.91 60602	Rev. 1 Rev. 0 Rev. 0 Rev. 0
Document Control List (407 Low-Mounted Fixed) Instructions for Continued Airworthiness Flight Manual Supplement Installation Drawing	DCL606 ICA 492.90 FMS 606.01 60601	Rev. 3 Rev. 1 Rev. 2 Rev. 2
Document Control List (407 High-Mounted Fixed) Instructions for Continued Airworthiness Flight Manual Supplement Installation Drawing	DCL606-1 MI 606.01 FMS 606.01 60603	Rev. 0 Rev. 2 Rev. 1 Rev. 0
Document Control List (407 Low-Mounted Q-Release) Instructions for Continued Airworthiness Flight Manual Supplement Installation Drawing (Q-R Basket) Installation Drawing (Provisions) Service Instructions (Sliding Door Modification)	DCL701 ICA 698.90 FMS 701.90 70101 70102 SI698.91	Rev. 3 Rev. 1 Rev. 2 Rev. 3 Rev. 0 Rev. 0
Document Control List (407 & 206L High-Mounted Q-R) Instructions for Continued Airworthiness	DCL766-1 ICA 766.90	Rev. 0 Rev. 0

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Flight Manual Supplement (407) Flight Manual Supplement (206L series) Installation Drawing	FMS 766.91 FMS 766.92 76601	Rev. 0 Rev. 0 Rev. 0
Document Control List (206L series Provisions) Instructions for Continued Airworthiness Flight Manual Supplement Installation Drawing	DCL493 ICA 493.90 FMS 493.01 49301	Rev. 6 Rev. 0 Rev. 0 Rev. 2
Document Control List (206L series Lo-Mounted Fixed) Instructions for Continued Airworthiness Flight Manual Supplement Installation Drawing	DCL492 ICA 492.90 FMS 492.01 49201	Rev. 6 Rev. 1 Rev. 2 Rev. 3
Document Control List (206L Low-Mounted Q-Release) Instructions for Continued Airworthiness Flight Manual Supplement Installation Drawing (QR Basket) Installation Drawing (Provisions)	DCL702 ICA 698.90 FMS 702.90 70201 70202	Rev. 2 Rev. 1 Rev. 2 Rev. 3 Rev. 0
Document Control List (Quick Release Step) Instructions for Continued Airworthiness Installation Drawing	DCL800-2 ICA 800.90 80002	Rev. 0 Rev. 2 Rev. 0
Document Control List (Auxiliary Step – All models) Installation Drawing	DCL623 62301	Rev. 1 Rev. 1
Document Control List (Basket Modifications)	DCL704	Rev. 1
Document Control List (Fixed Cargo Basket Assembly) Document Control List (Quick-Release Basket Ass'y) Document Control List (Q-R Mounting Beams) Document Control List (High-Mount Basket Assembly) Document Control List (Step Assembly)	DCL492-1 DCL698-1 DCL698-2 DCL766-2 DCL800-12	Rev. 1 Rev. 1 Rev. 3 Rev. 0 Rev. 0
Engineering Report	ER 800.02 ER 766.01 TP 766.02 ER 704.02 ER 698.01 ER 698.02 TP 698.03 ER 698.04 ER 623.01 ER 606.01 ER 606.02 ER 606.03 TR 606.04 TR 606.05 ER 493.01 ER 493.03	Rev. 0 Rev. 0

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Engineering Report	ER 492.01	Rev. 0
Engineering Report	ER 492.02	Rev. 0
Engineering Report	ER 492.03	Rev. 0
Engineering Report	ER 492.04	Rev. 0
Engineering Report	ER 362.02	Rev. 2
Engineering Report	ER 261.02	Rev. 0

- The documents below are on attached the CD-ROM -

Drawings:

69810	60620	49205	49311
69811	60621	49207	49312
69812	60622	49208	
69821	60624	49209	36255
69822	60630	49210	36261
69823	60631	49211	36262
69824	60632	49212	36271
69825	60640	49213	36272
69826	60641	49214	36273
69827	60642	49215	36274
69830	60643	49216	36275
69831	60644	49217	36277
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Regards

E. Burgoin, P.Eng, DAR 290M

Encl.

DEPARTMENT OF TRANSPO FEDERAL AVIATION ADMINIS		
APPLICATION FOR TYPE CERTIFICATE, P	FORM APPROVED	
OR SUPPLEMENTAL TYPE		O.M.B. No. 04-R0078
 Name and address of applicant Aero Design Ltd. 2013 - 39th Avenue NE Calgary, Alberta, T2E 6R7 Canada 	2. Application made for - Type Certificate Production Certificate Supplemental Type Certificate	3. Product involved Aircraft Engine Propeller
4. TYPE CERTIFICATE (Complete item 4a below)	•	Lastron and the second and the secon
a. Model designation(s) (All models listed are to be completely designerepresenting the design, material, specifications, construction, a which is the subject of this application.) Output Description:	scribed in the required technical data, including of and performance of the aircraft, aircraft engine, p	drawings propeller
PRODUCTION CERTIFICATE (Complete items 5a-c below. of quality control data or changes thereto covering new products		iy
a. Factory address (If different from 1 above)	b. Application is for - New Production Certificate Additions to Production Certificate (Give P.C. No.)	P.C. No.
c. Applicant is holder of or a licensee under a Type Certificate or a (Attach evidence of licensing agreement and give ertificate num		T.C./S.T.C. No.
6. SUPPLEMENTAL TYPE CERTIFICATE (Complete items 6	6a-d below)	
Make and model designation of product to be modified Bell Helicopter (Textron)		
b. Description of modification Revision to FAA STC SR02253NY, Installation of External Carge Provisions for mounting the Cargo Basket are installed by replace hardware. Support beams attach to the fasteners in the provision cargo externally. The basket can be mounted and removed from are available for baskets that mount "high" beside the fuselage, Optional Steps attach to the same provisions provided for the Car	ocement of the landing gear saddles, with new sar ons. The steel frame and mesh basket attaches in the beams without tools. Different cargo baske or "low" between the cross-tube legs of the land	to the support beams, to carry et and support beam combinations
c. Will data be available for sale or release to other persons?	d. Will parts be manufactured for sale	e? (Ref. FAR 21.303)
YES NO		
7. CERTIFICATION - I certify that the above statements are true Signature of certifying official	Title E. Burgoin DAR 290M (AERO Design Ltd.)	Date 29 April, 2009

D. LIMITED STC/STA REVISION LSTC/LSTA No. E. F.A.A. SUPPLEMENTAL TYPE CERTIFICATE F. F.A.A. STC REVISION STC No. SR02253NY G. FAMILIARIZATION OF F.A.A. STC STC STC No. H. REPAIR DESIGN APPROVAL (RDC)		
F. F.A.A. STC REVISION STC No. SR02253NY G. FAMILIARIZATION OF F.A.A. STC STC No.		
G. FAMILIARIZATION OF F.A.A. STC		
H. REPAIR DESIGN APPROVAL (RDC)		
I. PARTS DESIGN APPROVAL (PDA)		
4. TITLE OF MODIFICATION OR REPAIR: Quick Release Cargo Basket Installation		
5. BRIEF DESCRIPTION OF MODIFICATION OR REPAIR: Installation of Cargo Basket on side of the helicopter. The mounting provisions are aluminum saddles that replace the landing gear a Support beams for the basket are attached to the fittings. The Cargo Basket can be installed and removed from the beams without to This revision incorporates all design changes and revised substantiating data for all models and configurations. See SH00-48 for configurations.	ools.	
6. APPLICABLE TYPE APPROVAL (TA) OR TYPE CERTIFICATE (TC) DOCUMENTS:		
A. TA NO. <u>H-92</u> B. TC No. <u>H2SW</u> C. OTHER		
7. PROPOSED BASIS OF APPROVAL:		
A. SAME AS TA B. SAME AS TC C. OTHER (Please specify)	_	
8. REQUIRED FOR DO	T USE C	ONLY
DOCUMENTATION CHECKLIST REC	CEIVED	
	NO	DATE
COMPLIANCE PROGRAM X		
MASTER DRAWING LIST X		
FLIGHT MANUAL SUPPLEMENT X		
MAINTENANCE MANUAL SUPPLEMENT X		
INSTRUCTIONS FOR CONTINUING AIRWORTHINESS X		
ENGINEERING REPORTS X		1 -(2)
DESIGN DRAWINGS X		
MANUFACTURE DRAWINGS & INSTALLATION INSTRUCTIONS X		
ELECTRICAL LOAD ANALYSIS X		
DRAFT STC, LSTC OR RDA X		
WEIGHT AND MOMENT CHANGE X		
FLIGHT TEST DATA X		
OTHER (Specify)		
9. APPLICANT'S REMARKS: STC based on Transport Canada STC # SH00-48 issue 7		-
	513/4. April, 20	
SIGNATURE OF APPLICANTS TITLE D	DATE	
	DATE	







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(Additional charges will apply/ Des frais supplemetaires s'appliqueront.)	un "service personnalisé n'est pas ch	oisi, l'envoi sera livré selo	on les normes de	service régulier CF N	lanaging Move	nent.	
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before 9:00 am / avant 9 h	service à la clientèle au	1 888 879-3742.	salons professioni	nels		3 - 5 Day / 3 - 5 Jours	chauffé
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Mr. Communication of the Commu		00,000	DECLA WILL E	ARED VALUATION STA BE ASSESSED ON VAL	TES OTHERWIS UATION IN EXC	E. AN EXCESS VALUATION C ESS OF \$5.00 PER LB.	CHARGE OF 2% D
DIMENSIONS TOTAL CUB	BIC FEET / NOMBRE TOTAL DE	PIEDS CUBES	MAXIM	ALE DU TRANSPORTEU	R EST DE 4,41 \$1	ALEUR DÉCLARÉE, LA RESPONS PAR KILOGRAMME (2,00 \$ PAR L	IVRE). DES
80 X 27 X 24 0	LT			PAR KILOGRAMME (5,0		ONT CALCULÉS SUR LES VALEU	UHS EXCEUANT
NOTICE OF CLAIM: (a) No carrier is liable for loss, damage or delay to any goods under the Bill of Lading u of the origin, destination and date of shipment of the goods and the estimated amount claimed in respect writing to the originating carrier or the delivering carrier within sixty (60) days after the delivery of the goods	of such loss, damage or delay is give	n in au connaisseme	nt, qu'à la conditie	on qu'un avis écrit p	récisant l'origin	e des marchandises, leur de	aux marchandises transportées qui sont dé estination, leur date d'expédition et le mo porteur initial ou au transporteur de destin
within nine (9) months from the date of shipment. (b) The final statement of the claim must be filed within	nine (9) months from the date of shipn	dans les soixante	(60) jours suivant	la date de la livraison	des marchandi	ses ou dans les cas de non-liv	vraison, dans un délai de neuf (9) mois suiv

warm nime by mortus from the date of simpnent. (In e final statement of the calum must be fined writin nine (9) mortus from the date of simpnent together with a copy of the paid freight bill. (c) Carrier(s) are not liable for goods shipped at "SHIPPER'S RISK". COUNT" and/or if not properly packaged or crated. (d) the agreed value on glass and/or fragile goods, personal effects and/or used commodities does not exceed \$0.10 per pound, unless otherwise specified.

RECEIVED at the point of origin on the date specified, from the consignor mentioned herein, the property herein described, in apparent good order, except as noted (contents and conditions of contents of package unknown) marked, consigned and destined as indicated below, which the carrier agrees to carry and to deliver to the consigner at the said destination, if on its own authorized route or otherwise to cause to be carried by another carrier on the route to said destination, subject to the rates and classification in effect on the date of shipment.

It is mittail all property as the package of the property and as to each part of any time interested.

to the rates and cassination in effect on the date of shipment.

It is mutually agreed, as to each carrier of all of rany of the goods over all or any portion of the route to destination, and as to each party of any time interested in all or any of the goods, that every service to be performed hereunder shall be subject to all the conditions not prohibited by law, whether printed or written, including conditions set asked by the scnading-or hall be failed by the consignor accepted for himself and his assigns.

The Contract for the carriage of the goods listed in the bill of lading is governed by regulation in force in the jurisdiction at the time and place of shipment and is subject to the conditions set out in such regulations.

Debtor Responsibility: The Carrier reserves the right to seek payment from the shipper on any balances owed where a Freight Forwarder, Broker, or Logistics

dans les soixante (60) jours suivant la date de la livration des marchandises ou dans les cas de non-livraison, dans un délai de neuf (9) mois suivant la date de l'expédition. (b) La présentation de la réclamation finale accompagnée d'une preuve du palement des frais de transport doit être soumise au transporteur dans un délai de neuf (9) mois suivant la date de l'expédition. (c) Le ou les transporteurs n'assument aucune responsabilité pour les marchandises expéditées au « RISOLD DE L'EXPÉDITEUR)», les « ENVOIS CHÂNGES ET VERIFIES PAR L'EXPÉDITEUR» à levois les marchandises expéditées au « RISOLD DE L'EXPÉDITEUR)», les « ENVOIS CHÂNGES ET VERIFIES PAR L'EXPÉDITEUR» à levois les marchandises entre les marchandises en verre et lou fraigles. A la cale signal indication coritairse, la valeur agréée pour le marchandises en verre et lou fraigles. A la cale spécifiée et de l'expédition remitioné aux présentes les marchandises ci-après décrites en bon état apparent (le contenu des colls et sa condition étant inconnus) marquées, contresignées et destinées tel que ci-après mentionné, que le transporteur consent à transporter et à délivrer à leur consignataire au point de destination si ce points et rouve sur la route qu'il est autorisé à desseverir, sinno à faire transporter délivrer par un autre transporter aux taux et à la classification en vigueur à la date de l'expédition. Le les musulement converu que chaque transporteur transportair les dies marchandises en tout et en partie sur le parcours entier ou une portion quelconque de celui-ci jusqu'à destination et que tout intéressé à la ditte expédition pour tout service à effectuer en vertu des présentes est sujet à toutes les conditions imprimées ou érrites non prohibbes par la loi, inplant les conditions contrenues au verso des présentes qui sur acceptibles par le raich jusqu'à destination et que tout intéressé à las connaissement est régi par les réglements en vigueur dans le territoire d'où l'envoi est effectué à la date de cet envoi, et est assujetifieux conditions

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NOTICE OF CLAIM: (a) No carrier is liable for loss, damage or delay to any goods under the Bill of Lading of the origin, destination and date of shipment of the goods and the estimated amount claimed in respe- writing to the originating carrier or the delivering carrier within sixty (60) days after the delivery of the good within nine (9) months from the date of shipment. (b) The final statement of the claim must be filed within ogether with a copy of the paid freight bill. (c) Carrier(s) are not liable for goods shipped at "SHIPPER'S RI not properly packaged or crated. (d) the agreed value on glass and/or fragille goods, personal effects and/ per pound, unless otherwise specified.	ct of such loss, damage or delay is given in ds, or, in the case of failure to make delivery, n nine (9) months from the date of shipment SK", "SHIPPER'S LOAD & COUNT" and/or if	au connaissement, qu'à la approximatif réclamé en rép dans les soixante (60) jours date de l'expédition. (b) La j transporteur dans un délai d expédiées au « RISQUE DE L	condition qu'un avis écrit précisant l' saration de la perte, des dommages ou suivant la date de la livraison des march présentation de la réclamation finale ac e neuf (9) mois suivant la date de l'expéd L'EXPÉDITEUR », les « ENVOIS CHARGI	origine des marchandises, leur of du retard ne soit signifié au tran- nation dans les cas de non- compagnée d'une preuve du paie lition. (c) Le ou les transporteurs n'az ÉS ET VÉRIFIÉS PAR L'EXPÉDITE	saux marchandises transportées qui sont décrites destination, leur date d'expédition et le montant sporteur initial ou au transporteur de destination, livraison, dans un délai de neuf (9) mois suivant la ement des frais de transport doit être soumise au sument aucune responsabilité pour les marchandises UR » et/ou les marchandises emballées ou mises en et/ou facillées. de effets personnels et/ou les demés

per pound, unless otherwise specified.

RECEIVED at the point of origin on the date specified, from the consignor mentioned herein, the property herein described, in apparent good order, except as noted (contents and conditions of contents of package unknown) marked, consigned and destined as indicated below, which the carrier agrees to carry and to deliver to the consignee at the said destination, if on its own authorized route or otherwise to cause to be carried by another carrier on the route to said destination, subject to the rates and destination as to each carrier of all or any of the goods over all or any portion of the route to destination, and as to each party of any time interested in all or any of the goods, that every service to be performed hereunder shall be subject to all the conditions not prohibited by law, whether printed or written, including conditions set aside by the standard bill of fading, in power at the date of issuing, which are hereby agreed by the consignor and accepted for himself and his assigns. The Contract for the carriage of the goods listed in the bill of lading is governed by regulation in force in the jurisdiction at the time and place of shipment and is subject to the conditions set unit in such regulations.

Debtor Responsibility: The Carrier reserves the right to seek payment from the shipper on any balances owed where a Freight Forwarder, Broker, or Logistics Company fails to meet the terms of payment indicated.

caisse de façon inappropriée. (d) sul indication contraire, la valeur agréée pour le marchandises en verre et/ou fragiles, les effets personnels et/ou les denrées usagées revoidée pas 0.2.2 S par lètigramme (n) 10 S par lèvre).

REÇU au point d'origine, à la date spécifiée et de l'expéditeur mentionné aux présentes les marchandises ci-après décrités en bon état apparent (le contenu des cols et sa condition étant incomus) marquées, contresignées et destinées tel que ci-après mentionné, que le transporteur consent à transporteur d'a leur consignataire au point de destination si ce point se trouve sur la route qu'il est autorisé à dessenvir, sinon à faire transporteur des délivrer à leur consignataire au point de destination si ce point se trouve sur la route qu'il est autorisé à dessenvir, sinon à faire transporteur consent que chaque transporteur transportant les dites marchandises en tout et en partie sur le parcours entier ou une portion quelconque de celui-ci jusqu'à destination et que tout intéressé à la dies expédition pour tout service à effectuer en vertu des présentes est sujet à foutest les conditions imprimées ou érrites non prohibbes par la loi, incluant les conditions contenues au verso des présentes qui sorti acceptées par l'expéditeur pour lui-mêmer et se ayants droits. Le Contrat de transport des marchandises énumérées dans le connaissement est régli par les réglements en vigueur dans le territoire d'où fervoi est estudies une conditions s'équiles dans ces réglements.

Responsabilité du débiteur : Le transporteur réserve le droit de percevoir tout soide du auprès de l'expéditeur lorsqu'un transitaire, un courtier de transport ou "unepocitée de jossiqueu omnt de respecter les conditions de paiement indiquées.

Company fails to meet the terms of payment indicated.	une société de logistique omet de respecter les conditions de paiement indiquées.	
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Transport Canada Trans



780-495-7963

Department of Transport

Supplemental Type Certificate

This approval is issued to:

Number: SH00-48

Aero Design Ltd.

Issue No.: 7

2013 39th Avenue North East

Approval Date: December 08, 2000

Calgary, Alberta

Issue Date: April 07, 2009

Canada T2E 6R7

Prairie and Northern

Responsible Office: Aircraft/Engine Type or Model:

BELL 206L, 206L-1, 206L-3, 206L-4, 407

Canadian Type Certificate or Equivalent:

BELL 206L, 206L-1, 206L-3, 206L-4, 407 H-92

Description of Type Design Change:

Installation of Cargo Basket / External Attachment

Provisions/Auxiliary step./Quick Release Step

Installation/Operating Data, Required Equipment and Limitations:

Bell 407 only:

407 Configuration A - External Attachment Provisions Only:

Installation of the External Attachment Provisions is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 700, Revision 1, dated 28 September 2007, or later approved revision.

AERO Design Ltd., Instructions for Continued Airworthiness ICA 700.90, Revision 0, dated 3 May 2006, or later accepted revision, is required with this installation.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS700.91, Revision 0, dated 4 May 2006, or later approved revision, is required with this installation.

External Attachment Provisions installed in accordance with DCL700 may remain installed if the basket installation is removed.

Basis of Certification remains as defined in the applicable Type Certificate Data Sheets.

(continued on page 2)

Conditions: This approval is only applicable to the type/model of aeronautical product specified therein. Prior to incorporating this modification, the installer shall establish that the interrelationship between this change and any other modification(s) incorporated will not adversely affect the airworthiness of the modified product.



R.A. Goossens For Minister of Transport

(Continuation Sheet)

Number: SH00-48 Issue 7

NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

<u>Bell 407 only:</u> (Continued) 407 Configuration B - External Cargo Basket (Low Mounted Fixed):

Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration B, External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL606, Revision 3, dated 28 September 2007, or later approved revision. High skid gear is required for the basket installation. Placard is required on the basket lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS 606.01, Revision 2, dated 28 September 2007, or later approved revision, is required with this installation.

AERO Design Ltd. Instructions for Continued Airworthiness ICA492.90, Revision 1, dated 28 September 2007, or later Transport Canada accepted revision, is required with this installation.

Basis of Certification remains as defined in the applicable Type Certificate Data Sheets.

407 Configuration C - External Cargo Basket Installation (High Mounted Fixed):

Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration C, External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL606-1, Revision 0, dated 1 February 2005, or later approved revision. Approved emergency exit "push out" windows or an approved sliding door are required on the side of the helicopter that the basket is installed on if passengers are to be carried. Placard required on the basket lid.

Transport Canada approved AERO Design Ltd., Flight Manual Supplement FMS 606.01 Revision 1 dated 01 February 2005, or later approved revision, is required with this installation.

(continued on page 3)



(Continuation Sheet)

AIRCRAFT CERT.

Number: SH00-48 Issue 7

NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

Bell 407 only: (Continued)

407 Configuration C - External Cargo Basket Installation (High Mounted Fixed):

AERO Design Ltd., Maintenance Instructions MI606.01 Revision 2, dated 19 July 2004, or later accepted revision, are required with this installation.

Basis of Certification remains as defined in the applicable Type Certificate Data Sheets.

407 Configuration D - External Cargo Basket Installation (Low Mounted Quick Release):

Installation of Configuration A, External Attachment Provisions, is a prerequisite for installation of Configuration D, External Cargo Basket Installation. Installation of the Cargo Basket is to be completed in accordance with Transport Canada approved AERO Design Ltd., Document Control List DCL 701, Revision 3, dated 2 December 2008, or later approved revision. High skid gear is required for the basket installation. Placard required on the lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS701.90, Revision 2, dated 17 July 2008, or later approved revision is required with this installation.

AERO Design Ltd., Instructions for Continued Airworthiness ICA 698.90, Revision 1, dated 9 November 2006, or later accepted revision is required with this installation.

Basis of Certification is defined by the applicable Type Certificate Data Sheets.

Bell 407 Configuration E - External Cargo Basket Installation High Mounted Quick Release

Installation of Configuration A, External Attachment Provisions, is a prerequisite for installation of Configuration E, External Cargo Basket Installation. Installation of the Cargo Basket is to be completed in accordance with Transport Canada approved AERO Design Ltd., Document Control List DCL 766-1, Revision 0, dated 26 September 2007, or later approved revision. Approved emergency exit "push out" windows or an approved sliding door are required on the side of the helicopter that the basket is installed on if passengers are to be carried. Placard required on the lid.

(continued on page 4)



(Continuation Sheet)

Number: SH00-48 Issue 7

NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS766.91, Revision 0, dated 30 October 2007, or later approved revision, is required with this installation.

AERO Design Ltd., Instructions for Continued Airworthiness ICA 766.90, Revision 0, dated 26 September 2007, or later accepted revision, is required with this installation.

Basis of Certification is defined by the applicable Type Certificate Data Sheets.

Bell 206L, L-1, L-3, L-4 only:

206L Series Configuration A - External Attachment Provisions Only:

Installation of the External Attachment Provisions is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 493, Revision 6, dated 10 May 2006, or later approved revision.

Transport Canada approved AERO Design Ltd. Flight Manual Supplement FMS 493.01, Revision 0, dated 19 May 2002, or later approved revision, is required with this installation.

AERO Design Ltd. Instructions for Continued Airworthiness ICA 493.90, Revision 0, dated 4 May 2006, or later Transport Canada accepted revision, is required with this installation.

External Attachment Provisions installed in accordance with DCL493 may remain installed if the basket installation is removed.

Easis of Certification is as defined in the Type Certificate Data Sheets, plus FAR27 at amendment 27-24.

(continued on page 5)



(Continuation Sheet)

Number: SH0(-48 Issue 7

NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

206L Series Configuration B - External Cargo Basket (Low Mounted):

Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration B, External Cargo Basket installation. Installation of the cargo basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control Lis: DCL492, Revision 6, dated 28 September 2007, or later approved revision. High skid gear is required for the basket installation. Placard is required on the basket lid.

Transport Canada approved AERO Design Ltd., Flight Manual Supplement FMS 492.01, Revision 2, dated 28 September 2007, or later approved revision, is required with this installation.

AERO Design Ltd., Instructions for Continued Airworthiness ICA492.90, Revision 1, dated 28 September 2007, or later Transport Canada accepted revision, is required with this installation.

Basis of Certification is as defined in the Type Certificate Data Sheets, plus FAR27 at amendment 27-

206L Series Configuration C - External Cargo Basket Installation (Low Mounted Quick Felease):

Installation of Configuration A, External Attachment Provisions, is a prerequisite for installation of Configuration C, External Cargo Basket Installation. Installation of the Cargo Basket is to be completed in accordance with Transport Canada approved AERO Design Ltd., Document Control List DCL 702, Revision 2, dated 2 December 2008, or later approved revision. High skid gear is required for the basket installation. Placard required on the lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS702.90, Revision 2, dated 17 July 2008, or later approved revision is required with this installation.

AERO Design Ltd., Instructions for Continued Airworthiness ICA 698.90, Revision 1, dated 9 November 2006, or later accepted revision is required with this installation.

Basis of Certification is defined by the applicable Type Certificate Data Sheets, plus FAR 27 amendment 27-30.

(continued on page 6)





(Continuation Sheet)

Number: \$H0(148 Issue 7

NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

206L Series Configuration D - External Cargo Basket Installation (High Mounted Quick Release):

Installation of Configuration A External Attachment Provisions is a prerequisite for installation of Configuration D. External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada Approved Aero Design Ltd. Document Control List DCL766-1, Revision 0, dated 26 September 2007, or later approved revision. Approved emergency exit "push-out" windows or an approved sliding door are required on the side of the helicopter that the basket is installed on if passengers are to be carried. Placard is required on the basket lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS 766.92, Revision 0, dated 30 October 2007, is required with this installation.

Transport Canada accepted, AERO Design Ltd., Instructions for Continued Airworthiness ICA 766.90, Revision 0, dated 26 September 2007, is required with this installation.

Basis of Certification is defined by the applicable Type Certificate Data Sheets, plus FAR 27 at amendment 27-30 (Bell 407 basis).

All Models (Bell 206L series and 407)

Auxiliary Step Installation:

Installation of the Auxiliary Step is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL623, Revision 0, dated 13 January 2005, or later approved revision.

The auxiliary step is optional and is not required with installations listed above.

Auxiliary Step installed in accordance with DCL623 may remain installed if the basket installation is removed.

Basis of Certification is as defined in the Type Certificate Data Sheets, plus FAR 27 amendment 27-30.

(continued on page 7)



(Continuation Sheet)

Number: SH00-48 Issue 7

NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

All Models (Bell 206L series and 407) Cargo Basket Modifications:

Modifications to the cargo basket configurations are eligible in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL704, Revision 0, dated 10 May 2006, or later approved revision. Eligibility limitations are noted on the drawings.

Quick Release Step Installation:

Installation of the Low Mounted Quick Release Cargo Basket (407 – Configuration D; 206L - Configuration C) is required prior to installation of the Quick Release Step. Installation of the Quick Release Step is to be completed in accordance with Transport Canada approved, AERO Design Ltd. Document Control List DCL800-2, Rev. 0, dated 2 December 2008, or later approved revision.

The Quick Release Step is optional and is not required with the Quick Release Cargo Basket Installation. The Quick Release Step may be stowed in the inboard position on the mounting provisions when the Quick Release Cargo Basket is installed.

AERO Design Ltd. Instructions for Continued Airworthiness ICA 800.90, Revision 2, dated 2 December 2008, or later accepted revision, is required with this installation.

Easis of Certification is as defined by the applicable Type Certificate Data Sheets, plus FAR 27, amendment 27-30.

- End -

DOCUMENT NO.	DOCU	MENT CONTENT	REVISION	
INSTALLATION DOCUMENTS				
80002	Quick Release Step I	ā		
ICA800.90	instructions for Conti	instructions for Continued Airworthiness		
FMS701.90 FMS702.90	Plight Manual Supple Flight Manual Supple	ment (Bell 407) ment (Bell 206L Series)	2 2	
FABRICATION DOCUMENTS				
DCL800-12	Document Control Lis	st for Quick Release Step	o	
ENGINEERING DOCUMENTS				
APPROVAL: Transport Transports Canada Canada AIRCRAFT CERTIFICATION IDIVISION	ORIGINAL DATE: 2 December, 2008 REVISION DATE:	AERO DESIGN 2013 39 th Ave NE, Calgary, Alt Ph. (403) 250-802 Fax. (403) 250-833 www.aerodesign.c	oerta, T2E 6R7 7 3	
APPROVED By Vorozo Appri No. SHOO-48	SHEET 1 OF 1	Bell 206L Series & 407 Quick Release Step Installation		
Appril Date <u>00-12-08</u> Issue No. 7 Issue Date <u>09-04-07</u> YY-MM-DD	0			

DOCUMENT NO.	DOCUI	MENT CONTENT	REVISION
FABRICATION DOCUMENTS 80010 80020	Step Assembly Step End Fabrication		1 0
ENGINEERING DOCUMENTS ÉR800.02	Engineering Report		0
APPROVAL: Transport Carrada AIRCRAFT CERTIFICATION DIVISION	ORIGINAL DATE: 2 Decembor, 2008 REVISION DATE:	AERO DESIGI 2013 – 39 th Ave NE, Calgary, All Ph. (403) 250-802 Fax. (403) 250-833 www.aerodesign.c	berta, T2E 6R7 7 33
By 400000 Appri No. 5HOO-48	SHEET 1 OF 1	Bell 206L Series Quick Release Fabrication	Step
Appril Date <u>60-/2 - 68</u> Issue No. <u>7</u> Issue No. <u>7</u> Issue Date <u>69-04-07</u> YY-MM-DD	DCI	L800-12	O O

DOCUMENT NO.	DOCU	MENT CONTENT	REVISION
FABRICATION DOCUMENTS 69830 69831	Forward Beam Fabric Aft Beam Fabrication	eation	3 3
ENGINEERING DOCUMENTS ER698.02 TP698.03 ER698.04	Engineering Report Test Plan Engineering Report		a a
APPROVAL: APPROVAL: AIRCRAFT CERTIFICATION DIVISION APPROVED	ORIGINAL DATE: 3 May, 2008 REVISION DATE: 2 December, 2008	AERO DESIG 2013 – 39 th Ave NE, Calgary, A Ph. (403) 250-80 Fax. (403) 250-80	Alberta, T2E 6R7 127 333
By Aros- Appril No. SHOO-48 Appril Date CO-12-08 Issue No. 7 Issue Date O9-04-07	DC	Quick Release Mour	Rev.

FMS702.90

BELL 206L SERIES

ROTORCRAFT FLIGHT MANUAL SUPPLEMENT for the

INSTALLATION of the AERO DESIGN QUICK RELEASE CARGO BASKET AND/OR QUICK RELEASE STEP

Supplemental Type Certificate No. SH00-48

Sections I, II, III and IV of this document comprise the Transport Canada Approved sections of this Flight Manual Supplement. Compliance with Section I, Limitations, is mandatory.

Section V and any subsequent sections if present are Unapproved and are provided for information only.

The information and data contained in this Flight Manual Supplement supersede or supplement that contained in the basic Approved Flight Manual for the Ball 206L Series when fitted with the Quick Release Cargo Basket or Quick Release Step Installation. For limitations, procedures and performance not listed in this Flight Manual Supplement, refer to the Approved Flight Manual and other approved Flight Manual Supplements.

Transport Transports Canada Canada Canada Canada AIRCRAFT CERTIFICATION DIVISION

APPROVED

By Conson Approval Date Of-O7-O7 YY-MM-90

Revision 2 17 July, 2008 APR 0 7 2009 Page 1
TRANSPORT CANADA APPROVED

DOCUMENT NO.	DOCU	MENT CONTENT	REVISION
INSTALLATION DOCUMENTS			
70201 70202	Quick Release Cargo Basket Installation Quick Release Mounting Provisions Installation		3 0
ICA698.90	Instructions for Conti	nued Airworthiness	1
FMS702.90	Flight Manual Supple	ment	2
FABRICATION DOCUMENTS			
DCL698-1 DCL698-2	Document Control List Document Control List	st for Quick Release Cargo Basket st for Beams	1 3
ENGINEERING DOCUMENTS			
APPROVAL:	ORIGINAL DATE:	AERO DESIG	NITO
Transport Transports Canada Canada	10 May, 2006	2013 – 39th Ave NE, Calgary, Al	berta, T2E 6R7
AIRCRAFT CERTIFICATION	REVISION DATE: 2 December, 2008	Ph. (403) 250-802 Fax. (403) 250-833	
DIVISION APPROVED		Bell 206L Ser	
By A of pass	SHEET 1 OF 1 Quick Release Cargo Ba		
Appril No. <u>SH00-48</u> Appril Date <u>00 - 12 - 08</u>			Rev.
tenus ata "7	DCI 700		
Issue Date <u>D9-04-07</u>	DCL702 2		
	11.00		

FMS701.90

BELL 407

ROTORCRAFT FLIGHT MANUAL SUPPLEMENT

for the

INSTALLATION of the AERO DESIGN QUICK RELEASE CARGO BASKET AND/OR QUICK RELEASE STEP

Supplemental Type Certificate No. SH00-48

Sections I, II, III and IV of this document comprise the Transport Canada Approved sections of this Flight Manual Supplement. Compliance with Section I, Limitations, is mandatory.

Section V and any subsequent sections if present are Unapproved and are provided for information only.

The information and data contained in this Flight Manual Supplement supersede or supplement that contained in the basic Approved Flight Manual for the Bell 407 when fitted with the Ouick Release Cargo Basket or Quick Release Step Installation. For limitations, procedures and performance not listed in this Flight Manual Supplement, refer to the Approved Flight Manual and other approved Flight Manual Supplements.

Transport Transports
Canada

AIRCRAFT CERTIFICATION
DIVISION

APPROVED

By Approval Date 09-09-01

YYAMIA OD

Revision 2 17 July, 2008 APR 0 7 2009 Page 1 TRANSPORT CANADA APPROVED

DOCUMENT NO.	DOCUMENT CONTENT	REVISION
INSTALLATION DOCUMENTS		
70101 70102	Quick Release Cargo Basket Installation Quick Release Mounting Provisions Installation	3 0
ICA698.90	Instructions for Continued Airworthiness	1
FM\$701.90	Flight Manual Supplement	2
SI698.91	Service Instructions - Sliding Door Modification	0
FABRICATION DOCUMENTS		
DCL698-1 DCL698-2	Document Control List for Quick Release Cargo Basket Document Control List for Beams	3
ENGINEERING DOCUMENTS		
APPROVAL: Transport Transports Canada Canada	ORIGINAL DATE: 10 May, 2006 AERO DESIGN 2013 – 39 th Ave NE, Calgary, All	
ALECRAFT CERTIFICATION	REVISION DATE: Ph. (403) 250-802 2 December, 2006 Pax. (403) 250-833	7
By APPROVED Appri No. SHOO-48	SHEET 1 OF 1 Quick Release Carg	
Appr'l Date 60-12-08 Issue No. 7 Issue Date 09-04-07	DCL701	3





1100-9700 Jasper Avenue Edmonton, Alberta T5J 4E6

April 9, 2009

Aero Design Ltd. 2013 39th Avenue North East Calgary, Alberta Canada, T2E 6R7

Dear Sirs:

Your file 800-2

Votre référence

Our file C-08-1002 SH00-48

SUBJECT:

REVISION TO SUPPLEMENTAL TYPE CERTIFICATE NO. SH00-48 – ISSUE 7 DATED APRIL 07, 2009 – INSTALLATION OF CARGO BASKET/EXTERNAL ATTACHMENT PROVISIONS/AUXILIARY STEP/QUICK RELEASE STEP BELL 206L, 206L-1, 206L-3, 206L-4, 407 – ISSUED TO AERO DESIGN LTD.

This Supplemental Type Certificate (STC) is issued in response to your application. Included with the STC are the documents bearing the original Transport Canada signatures.

SIC IN BINDER

The transfer of this SH00-48 in the name of another person requires the prior approval from the Minister in accordance with Canadian Aviation Regulations (CAR) 513.25.

The requirements of CAR 561 apply where parts are manufactured and offered for sale. The provisions of CAR 571.06(4) should also be consulted.

A Canadian holder is required to report any service problem experienced with their product. Therefore, should you become aware of any defect, malfunction or failure resulting from the design change, it is your responsibility to submit a Service Difficulty Report to Transport Canada in accordance with CAR V, Subpart 91.

Yours truly.

J. Staal

Aircraft Certification Engineering Technologist

Prairie and Northern Region

Phone: 780-495-5227 Facs: 780-495-7963

Encl.



MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

APPENDIX A-3 NORMAL CATEGORY ROTORCRAFT - CAR 527

BLOCK 1

Name of the applicant for the design change approval:

Aero Design Ltd.

Description of the design change:

Installation of Quick Release Step on Bell 206L Series/407

Certification Basis of design change and revision date:

FAR 27, Amendment 27-30

CAR Standard A527.1(c) Program showing how changes to supplemental ICA made by the applicant or by the manufacturers of products and appliances installed in the aeroplane pursuant to the design change will be distributed:

Section 0-3 of Supplemental ICA (ICA 800.90)

CAR Standard 513.05 (1) (g) (iv): Installation Instructions:

Installation Drawing 80002

BLOCK 2

Note: Enter "N/A" when no supplemental ICA are needed.

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
A527.2 (a) Manual(s) (a) The Instructions for Continued Airworthiness must be in the form of a manual or manuals as appropriate for the quantity of data to be provided.	ICA ref: Bell 206L/407 Maintenance Manuals, BHT-206L-MM BHT-206L1-MM BHT-206L3-MM BHT-206L4-MM BHT-407-MM	Supplemental ICA ref: Single Manual (ICA800.90)
A527.2 (b) Practical arrangement (b) The format of the manual or manuals must provide for a practical arrangement.	ICA ref: Bell 206L/407 Maintenance Manual	Supplemental ICA ref: Arranged in ATA format
A527.3 The Instructions for Continued Airworthiness must contain the following manuals or sections, as appropriate, and information:		
A527.3 (a) Rotorcraft maintenance manual or section		
A527.3 (a) (1) (Introduction) (1) Introduction information that includes an explanation of the rotorcraft's features and data to the extent necessary for maintenance or preventive maintenance.	ICA ref: Bell 206L/407 Maintenance Manual, Chapter 1	Supplemental ICA ref: Section 0-1

MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
A527.3 (a) (2) (Description) (2) A description of the rotorcraft and its systems and installations including its engines, rotors, and appliances.	ICA ref: Bell 206L/407 Maintenance Manual, Chapter 1	Supplemental ICA ref: Section 0-5
A527.3 (a) (3) Control & Operation (3) Basic control and operation information describing how the rotorcraft components and systems are controlled and how they operate, including any special procedures and limitations that apply.	ICA ref: N/A	Supplemental ICA ref: N/A
A527.3 (a) (4) Servicing (4) Servicing information that covers details regarding servicing points, capacities of tanks, reservoirs, types of fluids to be used, pressures applicable to the various systems, location of access panels for inspection and servicing, locations of lubrication points, lubricants to be used, equipment required for servicing, tow instructions and limitations, mooring, jacking, and levelling information.	ICA ref: Bell 206L/407 Maintenance Manual, Chapter 12	Supplemental ICA ref: N/A
A527.3 The Instructions for Continued Airworthiness must contain the following manuals or sections, as appropriate, and information:		
A527.3 (b) Maintenance Instructions. A527.3 (b) (1) Scheduling 1) Scheduling information for each part of the rotorcraft and its engines, auxiliary power units, rotors, accessories, instruments, and equipment that provides the recommended periods at which they should be cleaned, inspected, adjusted, tested, and lubricated, and the degree of inspection, the applicable wear tolerances, and work recommended at these periods. However, the applicant may refer to an accessory, instrument, or equipment manufacturer as the source of this information if the applicant shows that the item has an exceptionally high degree of complexity requiring specialized maintenance techniques, test equipment, or expertise. The recommended overhaul periods and necessary cross-references to the Airworthiness Limitations section of the manual must also be included. In addition, the applicant must include an inspection program that includes the frequency and extent of the inspections necessary to provide for the continued airworthiness of the rotorcraft.	ICA ref: Bell 206L/407 Maintenance Manual, Chapter 5	Supplemental ICA ref: Section 5-1

MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
A527.3 (b) (2) Troubleshooting (2) Troubleshooting information describing probable malfunctions, how to recognize those malfunctions, and the remedial action for those malfunctions.	ICA ref: N/A	Supplemental ICA ref: N/A
A527.3 (b) (3) Removal/replacement (3) Information describing the order and method of removing and replacing products and parts with any necessary precautions to be taken.	ICA ref: Bell 206L/407 Maintenance Manual, Chapter 25	Supplemental ICA ref: Section 25-1, 25-2
A527.3 (b) (4) General (4) Other general procedural instructions including procedures for system testing during ground running, symmetry checks, weighing and determining the center of gravity, lifting and shoring, and storage limitations.	ICA ref: Bell 206L/407 Maintenance Manual, Chapter 7 and 8	Supplemental ICA ref: N/A
A527.3 (c) Access (c) Diagrams of structural access plates and information needed to gain access for inspections when access plates are not provided.	ICA ref: N/A	Supplemental ICA ref: N/A
A527.3 (d) Special inspections (d) Details for the application of special inspection techniques including radiographic and ultrasonic testing where such processes are specified.	ICA ref: Bell 206L/407 Maintenance Manual, Chapter 5	Supplemental ICA ref: Section 5-1
A527.3 (e) Protective treatment (e) Information needed to apply protective treatments to the structure after inspection.	ICA ref: Bell Standard Practices Manual BHT-ALL-SPM, Chapter 3	Supplemental ICA ref: Section 5-3
A527.3 (f) Fasteners, torque values, etc (f) All data relative to structural fasteners such as identification, discard recommendations, and torque values.	ICA ref: Bell Standard Practices Manual BHT-ALL-SPM, Chapter 2	Supplemental ICA ref: Section 25-4
A527.3 (g) Special tools (g) A list of special tools needed.	ICA ref: N/A	Supplemental ICA ref: N/A

MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

BLOCK 3

Note: The statement in block 5 does not constitute an approval of the Airworthiness Limitations Section. Airworthiness Limitations differ from other maintenance tasks, in that they are mandatory, as a direct condition of the approval of the type design. They are therefore referenced directly in the approval document itself. However, they must also be included in the Supplemental Instructions for Continued Airworthiness.

be included in the Supplemental Instructions for Continue	d Airworthiness.		
A527.4 AWL - Separate Section 1 The Instructions for Continued Airworthiness must contain a section titled Airworthiness Limitations that is segregated and clearly distinguishable from the rest of the document. This section must set forth each mandatory replacement time, structural inspection interval, and related structural inspection procedure approved under 527.571. If the Instructions for Continued Airworthiness consist of multiple documents, the section required by this paragraph must be included in the principal manual. This section must contain a legible statement in a prominent location that reads: "The Airworthiness Limitations section is approved by the Minister and specifies maintenance required by any applicable airworthiness or operating rule unless an alternative program has been approved by the Minister."	ICA ref: Bell 206L/407 Maintenance Manual, Chapter 4	Supplemental ICA ref: Ch	napter 4
BLOCK 4 – Applicant Statement of Compliance			
The Supplemental ICA referenced above comprises that supports this change in type design.	the complete listing of supplemental ICA necess	sary to show compliance with t	he regulatory standard
Applicants Signature:		Date:	December 2. 2008
Applicants Name: E. Burgoin, P.Eng, DAR 290M			
BLOCK 5 – Minister's Statement of Acceptability			
The design change is adequately supported by exis	tock stool a		Minister.
Reviewer's Name: STAAL J Phone # 78	80-495-5227 Email: tc.gc.ca M	ail Routing Symbol: RAEO	
Signature: Date: 2009			NAPA Number
			-N8 IDD 7

	MODIFICATION APPROVAL	L REQUEST	APPLICATION	ON FOI	RM	MOD80	0-2, Rev
1.	NAME AND ADDRESS OF APPLICANT:	2. IDENTIFIC	ATION OF PRODU	СТ	C-0	8-1002	٦.
West of the second seco	AERO Design Ltd. 2013 - 39th Avenue NE Calgary, Alberta T2E 6R7	MAKE: Bell			DEL: 206L Seri	es, 407	
	ALL CORRESPONDANCE TO: AERO Design Ltd. 2013 - 39th Avenue NE Calgary, Alberta T2E 6R7	SERIAL No.: All Eligible			GISTRATIC All Eligible		·
3.	REQUEST FOR:		elle elle book till block (1992 200 per	des to show such all sent differ			MINISTRATION CONTRACTOR IN
	A. SUPPLEMENTAL TYPE CERTIFICATE (STC)						
	B. STC/STA REVISION	⊠ STC/STA	No. SH00-48				
	C. LIMITED SUPPLEMENTAL TYPE CERTIFICATE (LSTC)						
	D. LIMITED STC/STA REVISION	LSTC/LS	STA No.				
	E. F.A.A. SUPPLEMENTAL TYPE CERTIFICATE						
	F. F.A.A. STC REVISION	STC No.					
	G. FAMILIARIZATION OF F.A.A. STC	STC No.					
Market and American	H. REPAIR DESIGN APPROVAL (RDC)						
	I. PARTS DESIGN APPROVAL (PDA)						
4.	TITLE OF MODIFICATION OR REPAIR:		minimization (the character) and Especially of the contract contract contracts and the character contracts and the	and the successive and the state of the stat			e Andrewski derekteken kreus van versch- e A
	Quick Release Mounting Provisions Installation; Quick Release Ba	asket Installation; Q	uick Release Step I	nstallation		-	
5.	BRIEF DESCRIPTION OF MODIFICATION OR REPAIR: Installation of external quick release mounting provisions, and inst installed on the quick release provisions when the basket is remove	allation of a cargo b ed.	asket on those prov	isions. Th	is revision a	dds a step t	hat may be
6.	APPLICABLE TYPE APPROVAL (TA) OR TYPE CERTIFICATE	(TC) DOCUMENTS		mental include Shadin State (200 cgg was		in maritim area in in the state of the State of	
	A. TA NO. H-92 B. TC No.	C. OTHER					
7.	PROPOSED BASIS OF APPROVAL:						
	A. SAME AS TA 🛛 B. SAME AS TC 📋	C. OTHER	[] (Please s	pecify)			
8.		COLUMN TO THE PARTY OF THE PART	REQU	REQUIRED FOR DOT USE		ONLY	
	DOCUMENTATION CHECKLIST					RECEIVED	
	COMPLIANCE PROGRAM	and the second s	YES	NO	YES	NO	DATE
_	MASTER DRAWING LIST		X		- E		
_	FLIGHT MANUAL SUPPLEMENT		X			-	
-	MAINTENANCE MANUAL SUPPLEMENT		X				
	INSTRUCTIONS FOR CONTINUING AIRWORTHINESS		X	X			
	ENGINEERING REPORTS		X		1		
-	DESIGN DRAWINGS		^	X	1. 2 1. 41 1. 1. 1. 1. 1. 1. 1.		
-	MANUFACTURE DRAWINGS & INSTALLATION INSTRUCTIONS		X	^			
<u> </u>	ELECTRICAL LOAD ANALYSIS		^	X			
-	DRAFT STC, LSTC OR RDA			X			
-	WEIGHT AND MOMENT CHANGE		X		 	g 0	
	FLIGHT TEST DATA			X	Fee e e		Pellalation (Intelligence on the Co.)
-	OTHER (Specify)						
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10.	In addition to the payment of Aircraft Certification approval fees as prescribe incremental expenses as in Aviation Regulation Directive No. 3, or equivaler	ed in Canadian Aviation	n Regulations (CAR) S further details governin	ection 104, g cost recov	I agree to rein	nburse Transp MA 513/4.	ort Canada
	(1) 0 7 -						
	PER:	Consultant				2 Decemb	er, 2008
	SIGNATURE OF APPLICANTS	TITLE				DATE	
11.		And the second s		Committee of the last of the l	Charles of the Control of the Contro		



Department of Transport

Supplemental Type Certificate

This approval is issued to:

Number: SH00-48

Aero Design Ltd.

Issue No.: 6

2013 39th Avenue North East

Approval Date: December 08, 2000

Calgary, Alberta

Issue Date: January 30, 2008

Canada T2E 6R7

Responsible Office:

Prairie and Northern

Aircraft/Engine Type or Model:

BELL 206L, 206L-1, 206L-3, 206L-4, 407

Canadian Type Certificate or Equivalent:

BELL 206L, 206L-1, 206L-3, 206L-4, 407 H-92

Description of Type Design Change:

Installation of Cargo Basket / External Attachment

Provisions/Auxiliary step.

Installation/Operating Data, Required Equipment and Limitations:

Bell 407 only:

407 Configuration A - External Attachment Provisions Only:

Installation of the External Attachment Provisions is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 700, Revision 1, dated 28 September 2007, or later approved revision.

AERO Design Ltd., Instructions for Continued Airworthiness ICA 700.90, Revision 0, dated 3 May 2006, or later accepted revision, is required with this installation.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS700.91, Revision 0, dated 4 May 2006, or later approved revision, is required with this installation.

External Attachment Provisions installed in accordance with DCL700 may remain installed if the basket installation is removed.

Basis of Certification remains as defined in the applicable Type Certificate Data Sheets.

(continued on page 2)

Conditions: This approval is only applicable to the type/model of aeronautical product specified therein. Prior to incorporating this modification, the installer shall establish that the interrelationship between this change and any other modification(s) incorporated **will not** adversely affect the airworthiness of the modified product.

D.S. Austen For Minister of Transport





TRANSFER ENDORSEMENT

A transfer of ownership requires a prior approval from the Minister.

The reissue of the certificate in the name of the transferee will be contingent upon a demonstration made by the new owner that he/she can fulfill the responsibilities of the holder as described in airworthiness manual chapter 513.

TRANSFER OF OWNERSHIP		
TO (NAME AND ADDRESS OF	TRANSFEREE)	
FROM (NAME AND ADDRESS	OF OWNER)	
TRANSFER PARTICULARS (L AGREEMENT, SALE OF RIGH	ICENCE ITS, ETC.)	
DATE OF TRANSFER		
		AN TO
	SIGNATURE	
	(OF ORIGINAL OWNER)	



Number: SH00-48 Issue 6

NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

<u>Bell 407 only: (Continued)</u> 407 Configuration B – External Cargo Basket (Low Mounted Fixed):

Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration B, External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL606, Revision 3, dated 28 September 2007, or later approved revision. High skid gear is required for the basket installation. Placard is required on the basket lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS 606.01, Revision 2, dated 28 September 2007, or later approved revision, is required with this installation.

AERO Design Ltd. Instructions for Continued Airworthiness ICA492.90, Revision 1, dated 28 September 2007, or later Transport Canada accepted revision, is required with this installation.

Basis of Certification remains as defined in the applicable Type Certificate Data Sheets.

407 Configuration C - External Cargo Basket Installation (High Mounted Fixed):

Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration C, External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL606-1, Revision 0, dated 1 February 2005, or later approved revision. Approved emergency exit "push out" windows or an approved sliding door are required on the side of the helicopter that the basket is installed on if passengers are to be carried. Placard required on the basket lid.

Transport Canada approved AERO Design Ltd., Flight Manual Supplement FMS 606.01 Revision 1 dated 01 February 2005, or later approved revision, is required with this installation.

(continued on page 3)

(Continuation Sheet)

Number: SH00-48 Issue 6

NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

Bell 407 only: (Continued)

407 Configuration C - External Cargo Basket Installation (High Mounted Fixed):

AERO Design Ltd., Maintenance Instructions MI606.01 Revision 2, dated 19 July 2004, or later accepted revision, are required with this installation.

Basis of Certification remains as defined in the applicable Type Certificate Data Sheets.

407 Configuration D - External Cargo Basket Installation (Low Mounted Quick Release):

Installation of Configuration A, External Attachment Provisions, is a prerequisite for installation of Configuration D, External Cargo Basket Installation. Installation of the Cargo Basket is to be completed in accordance with Transport Canada approved AERO Design Ltd., Document Control List DCL 701, Revision 1, dated 28 September 2007, or later approved revision. High skid gear is required for the basket installation. Placard required on the lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS701.90, Revision 1, dated 9 November 2006, or later approved revision is required with this installation.

AERO Design Ltd., Instructions for Continued Airworthiness ICA 698.90, Revision 1, dated 9 November 2006, or later accepted revision is required with this installation.

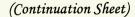
Basis of Certification is defined by the applicable Type Certificate Data Sheets.

Bell 407 Configuration E - External Cargo Basket Installation (High Mounted Quick Release)

Installation of Configuration A, External Attachment Provisions, is a prerequisite for installation of Configuration E, External Cargo Basket Installation. Installation of the Cargo Basket is to be completed in accordance with Transport Canada approved AERO Design Ltd., Document Control List DCL 766-1, Revision 0, dated 26 September 2007, or later approved revision. Approved emergency exit "push out" windows or an approved sliding door are required on the side of the helicopter that the basket is installed on if passengers are to be carried. Placard required on the lid.

(continued on page 4)







Number: SH00-48 Issue 6

NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS766.91, Revision 0, dated 30 October 2007, or later approved revision, is required with this installation.

AERO Design Ltd., Instructions for Continued Airworthiness ICA 766.90, Revision 0, dated 26 September 2007, or later accepted revision, is required with this installation.

Basis of Certification is defined by the applicable Type Certificate Data Sheets.

Bell 206L, L-1, L-3, L-4 only:

206L Series Configuration A – External Attachment Provisions Only:

Installation of the External Attachment Provisions is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 493, Revision 6, dated 10 May 2006, or later approved revision.

Transport Canada approved AERO Design Ltd. Flight Manual Supplement FMS 493.01, Revision 0, dated 19 May 2002, or later approved revision, is required with this installation.

AERO Design Ltd. Instructions for Continued Airworthiness ICA 493.90, Revision 0, dated 4 May 2006, or later Transport Canada accepted revision, is required with this installation.

External Attachment Provisions installed in accordance with DCL493 may remain installed if the basket installation is removed.

Basis of Certification is as defined in the Type Certificate Data Sheets, plus FAR27 at amendment 27-24.

(continued on page 5)



Number: SH00-48 Issue 6

NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

206L Series Configuration B - External Cargo Basket (Low Mounted):

Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration B, External Cargo Basket installation. Installation of the cargo basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL492, Revision 6, dated 28 September 2007, or later approved revision. High skid gear is required for the basket installation. Placard is required on the basket lid.

Transport Canada approved AERO Design Ltd., Flight Manual Supplement FMS 492.01, Revision 2, dated 28 September 2007, or later approved revision, is required with this installation.

AERO Design Ltd., Instructions for Continued Airworthiness ICA492.90, Revision 1, dated 28 September 2007, or later Transport Canada accepted revision, is required with this installation.

Basis of Certification is as defined in the Type Certificate Data Sheets, plus FAR27 at amendment 27-24.

206L Series Configuration C - External Cargo Basket Installation (Low Mounted Quick Release):

Installation of Configuration A, External Attachment Provisions, is a prerequisite for installation of Configuration C, External Cargo Basket Installation. Installation of the Cargo Basket is to be completed in accordance with Transport Canada approved AERO Design Ltd., Document Control List DCL 702, Revision 1, dated 28 September 2007, or later approved revision. High skid gear is required for the basket installation. Placard required on the lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS702.90, Revision 1, dated 9 November 2006, or later approved revision is required with this installation.

AERO Design Ltd., Instructions for Continued Airworthiness ICA 698.90, Revision 1, dated 9 November 2006, or later accepted revision is required with this installation.

Basis of Certification is defined by the applicable Type Certificate Data Sheets, plus FAR 27 amendment 27-30.

(continued on page 6)





206L Series Configuration D - External Cargo Basket Installation (High Mounted Quick Release):

Installation of Configuration A External Attachment Provisions is a prerequisite for installation of Configuration D. External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada Approved Aero Design Ltd. Document Control List DCL766-1, Revision 0, dated 26 September 2007, or later approved revision. Approved emergency exit "push-out" windows or an approved sliding door are required on the side of the helicopter that the basket is installed on if passengers are to be carried. Placard is required on the basket lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS 766.92, Revision 0, dated 30 October 2007, is required with this installation.

Transport Canada approved, AERO Design Ltd., Instructions for Continued Airworthiness ICA 766.90, Revision 0, dated 26 September 2007, is required with this installation.

Basis of Certification is defined by the applicable Type Certificate Data Sheets, plus FAR 27 at amendment 27-30 (Bell 407 basis).

All Models (Bell 206L series and 407)

Auxiliary Step Installation:

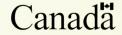
Installation of the Auxiliary Step is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL623, Revision 0, dated 13 January 2005, or later approved revision.

The auxiliary step is optional and is not required with installation of Configuration B or C.

Auxiliary Step installed in accordance with DCL623 may remain installed if the basket installation is removed.

Basis of Certification is as defined in the Type Certificate Data Sheets, plus FAR27 amendment 27-30.

(continued on page 7)





(Continuation Sheet)

Number: SH00-48 Issue 6

NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

<u>All Models (Bell 206L series and 407)</u> Cargo Basket Modifications:

Modifications to the cargo basket configurations are eligible in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL704, Revision 0, dated 10 May 2006, or later approved revision. Eligibility limitations are noted on the drawings.

- End -

DOCUMENT CONTROL LIST

DOCUMENT NO.	DOCU	MENT CONTENT	REVISION
FABRICATION DOCUMENTS			
69831 69831	Forward Beam Fabr Aft Beam Fabricatio		2 2
ENGINEERING DOCUMENTS ER698.02 TP698.03 ER698.04	Engineering Report Test Plan Engineering Report		0 0 0
APPROVAL: Transport Transports Canada Canada AIRCRAFT CERTIFICATION	ORIGINAL DATE: 3 May, 2006 REVISION DATE: 28 September, 2007	AERO DESIGN 2013 – 39 th Ave NE, Calgary, All Ph. (403) 250-802 Fax. (403) 250-833	perta, T2E 6R7 7
APPROVED By 5. Custer Appril No. SHOO-48	SHEET 1 OF 1	Quick Release Mount	ing Beams
Appr'l Date OO-12-08 Issue No. O Issue Date O8-01-30 YY-MM-DD	DC	L698-2	2

AERO Design Ltd.

SERVICE INSTRUCTIONS SI 698.91

BELL 407

MODIFICATION TO SLIDING DOOR INSTALLATION TO ACCOMMODATE QUICK RELEASE MOUNTING PROVISIONS

Prepared by: Jeff Clarke

Revision 0, 19 September, 2008

AERO Design Ltd. Engineering Consultants www.aerodesign.ca

2013 – 39th Avenue N.E., Calgary, Alberta T2E 6R7

Phone: (403) 250-8027 Fax: (403) 250-8333

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AERO Design Ltd.

TABLE OF CONTENTS

1.0	INTRODUCTION	3
2.0	REFERENCE	3
3.0	ACCOMPLISHMENT INSTRUCTIONS	3

1.0 INTRODUCTION

These instructions apply to Bell 407 helicopters that are fitted with the Aeronautical Accessories Sliding Door Installation per Canadian STC SH96-66. Location of the Sliding Door bottom rail is highly dependent on the installer, and may interfere with Quick Release Provisions Installations supplied by Aero Design Ltd (70102-01 Low Mounted; 76601-01 High Mounted).

These instructions provide for the modification to the bottom rail of the Sliding Door Installation in order to install the Quick Release Cargo Basket Installation.

2.0 REFERENCE

Aero Design Ltd. Drawing 70102 (Low Mounted Provisions) or 76601 (High Mounted Basket) Aero Design Ltd. Drawing 70001 (External Attachment Provisions Installation)

3.0 ACCOMPLISHMENT INSTRUCTIONS

- 1. Install External Attachment Provisions in accordance with drawing 70001.
- 2. Locate aft beam on aft attachment provisions. Thread AN6 bolt into one provision if possible.

Note: If both AN6-20A bolts can be installed without the aft beam interfering with the sliding door rail no modification to the sliding door rail is required. The beam may need to be slid as far right as possible on provisions.

- 3. Mark bottom sliding door rail at the forward edge of the beam.
- 4. Remove the door stop hardware from the aft end of the sliding door rail.

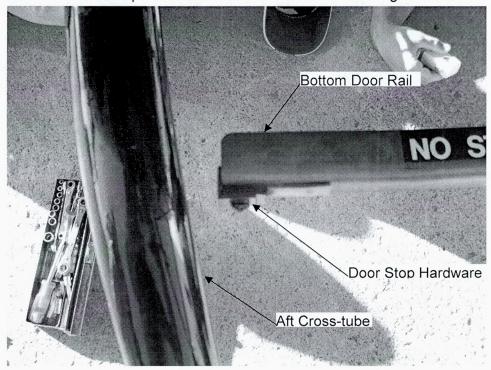


Figure 3.0.1 - Door Stop Hardware

- 5. Cut sliding door rail 0.5" forward of the mark made in step 3. Remove "NO STEP" placard if necessary.
- 6. Drill #9 (0.196) in aft end of sliding door rail to install stop hardware removed in step 4. Use door stop bracket to determine location.
- 7. Re-install stop hardware in new hole at the end of the sliding door rail. Install "NO STEP" placard (Aeronautical Accessories part number 099-094-114 or equivalent) if removed in step 5.

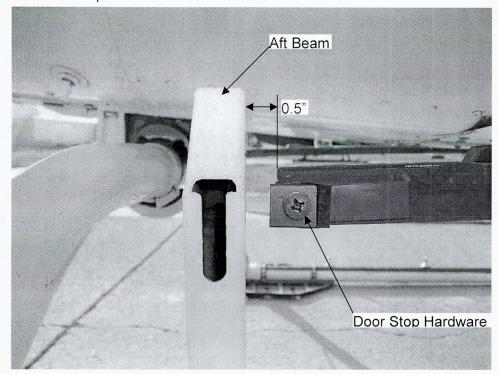


Figure 3.0.2 – Completed Modification (Low Mounted Quick Release Beam shown)

8. Install Quick Release Mounting Provisions in accordance with drawing 70102 or 76601 as applicable.

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS ICA 698.90

QUICK RELEASE CARGO BASKET

<u>Preface</u>

These Instructions for Continued Airworthiness shall be included in the rotorcraft Maintenance Manual when the Quick Release Cargo Basket assembled in accordance with AERO Design Ltd. Document Control List DCL698-1, Revision 0, and DCL698-2, Revision 0, or later approved revision, is installed.

The information contained herein supplements the information in the basic Maintenance Manual. For Maintenance practices and procedures not contained in these Instructions for Continued Airworthiness refer to the basic Maintenance Manual and its approved supplements.

Revision 0 Date: 20 April, 2006

<u>AERO Design Ltd.</u> Engineering Consultants 2013 – 39th Avenue N.E., Calgary, Alberta T2E 6R7

Phone: (403) 250-8027 Fax: (403) 250-8333

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RECORD OF REVISIONS

Revision Number	Issue Date	Date Inserted	Ву
0			Original Issue

LIST OF EFFECTIVE PAGES

List of Revisions	Revision 0 (Original Issue)	20 April, 2006
List of Effective Pages		
<u>Description</u>	<u>Pages</u>	Revision No.
Cover	1	0

Revision Record/List of Effective Pages	2	0
Table of Contents	3	0
00-00-00	4-6	0
04-00-00	7	0
05-00-00	8-9	0
11-00-00	11	0

12-14

0

25-50-00

TABLE OF CONTENTS

RECORD OF	REVISIONS	2
LIST OF EFFE	ECTIVE PAGES	2
CHAPTER 0 -	- INTRODUCTION	4
0-1	SCOPE	4
0-2	DEFINITIONS AND ABBREVIATIONS	4
0-3	DISTRIBUTION	4
0-4	COMPATIBILITY	4
0-5	GENERAL DESCRIPTION	5
0-6	STRUCTURAL PROVISIONS	6
CHAPTER 4 -	AIRWORTHINESS LIMITATIONS	7
CHAPTER 5 -	- INSPECTION REQUIREMENTS	8
5-1	INSPECTION SCHEDULE	8
5-2	DAMAGE LIMITS / REPAIR INSTRUCTIONS	9
5-3	PROTECTIVE TREATMENT INFORMATION	10
CHAPTER 11	 MARKINGS AND PLACARDS 	11
	 EQUIPMENT AND FURNISHINGS 	12
SEC	TION 50 – CARGO COMPARTMENTS	12
25-1	BEAMS INSTALLATION	12
25-2	BEAMS REMOVAL	12
25-3	BASKET INSTALLATION	13
25-4	BASKET REMOVAL	13
25-5		14
25-6	STRUCTURAL FASTENER DATA	14

CHAPTER 0 - INTRODUCTION

0-1 SCOPE

The following Instructions for Continued Airworthiness (ICA) satisfy the requirements of 14 CFR 27.1529, and provide the information necessary to complete the on-going maintenance and inspections required for rotorcraft embodying the Quick Release Cargo Basket as described herein.

0-2 DEFINITIONS AND ABBREVIATIONS

ICA - Instructions for Continued Airworthiness

LH - Left Hand

RH - Right Hand

0-3 DISTRIBUTION

Copies of this ICA and amendments shall be distributed to all known purchasers of the Quick Release Cargo Basket. Requests for a copy may be made in writing to:

AERO Design Ltd. 2013 39th Avenue N.E. Calgary, Alberta T2E 6R7

Fax: 403-250-8333

Email: info@aerodesign.ca

Any changes will be sent to Transport Canada. All changes will be recorded in the Record of Revisions page at the front of this document.

0-4 COMPATIBILITY

Prior to incorporating this modification, the installer shall establish that the interrelationship between this change and any other modification(s) incorporated will not adversely affect the airworthiness of the helicopter.

0-5 GENERAL DESCRIPTION

The cargo basket installation is a metal mesh basket installed to the side of the helicopter on beams attached to landing gear fittings with attachment provisions incorporated. The quick release basket allows for the installation and removal of the basket without tools, allowing a pilot operating in the field without maintenance support to install or remove the basket.

The basket itself is 75.75" long, 22.5" wide, and 17" high. It is made of a 4130 steel welded tubing structure, and lined with expanded steel mesh. The basket has a hinged lid with a self-locking handle.

The beams are steel tubing which attach to the landing gear fittings and stick out from the side of the helicopter. The quick release mechanism is built into the beams.

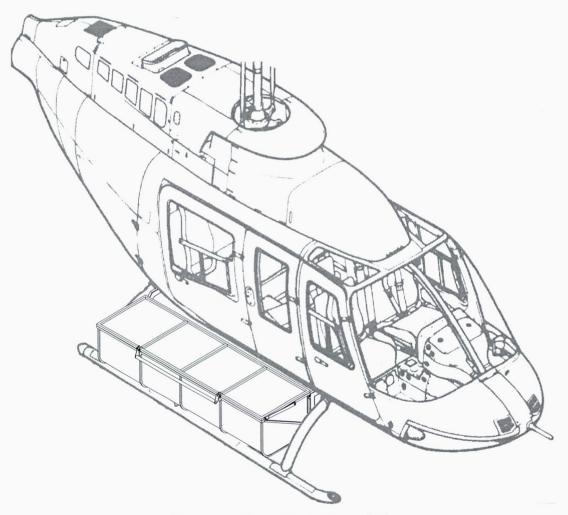


Figure 1 – Cargo Basket Installation

0-6 STRUCTURAL PROVISIONS

The External Attachment Provisions are installed on the helicopter in accordance with drawing 49301 (Bell 206L Series) or 60602 (Bell 407). That installation is separate from the basket installation. The External Attachment Provisions are not included in this ICA.

The external attachment provisions consist of replacement landing gear fittings that incorporate a barrel nut for installing equipment. Each fitting is bolted to the lower fuselage and landing gear with the same fasteners as used for the original fittings, as shown in Figure 2.

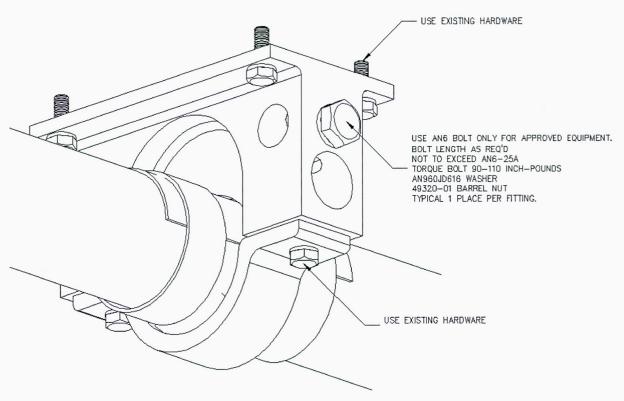


Figure 2 - Installation of External Attachment Provisions

CHAPTER 4 - AIRWORTHINESS LIMITATIONS

The Airworthiness Limitations section is Transport Canada-approved and specifies maintenance required under Section 571 of the Canadian Aviation Regulations, unless an alternative program has been approved.

No additional airworthiness limitations have been imposed due the installation of the Quick Release Cargo Basket.

Revision 0 **04-00-00** Page 7

CHAPTER 5 – INSPECTION REQUIREMENTS

5-1 INSPECTION SCHEDULE

Continued airworthiness is contingent upon compliance with the following inspection items. These items shall be completed in conjunction with the rotorcraft Maintenance Inspection schedule, or other approved program, or upon removal and replacement of any component of Quick Release Cargo Basket.

Daily Inspection

- 1. Inspection Area: Basket
 - a) Inspect the basket attachment to the beams for condition and security. Ensure quick release mechanism is completely extended, flush with the outboard surface of the beam.
 - b) Inspect latching of the lid for correct operation. If basket is bent inward the lid will close but may not latch.

300 Hour or Annual Inspection

- 1. Inspection Area: Basket
 - a) Visually inspect tube-to-tube welds and mesh-to-tube welds for cracks, corrosion or other damage.
 - b) Visually inspect basket mesh for damage.
- 2. Inspection Area: Beams
 - a) Visually inspect beams attaching basket to the helicopter for cracks, corrosion or other damage.
 - b) Visually inspect lugs attaching the basket to the beams hours for security and damage.
 - c) Visually inspect bolts attaching beams to external attachment provisions for security and damage.

Special Inspections

Following a hard landing inspect the Quick Release Cargo Basket installation in accordance with the 300 hour or annual inspection listed above.

5-2 DAMAGE LIMITS / REPAIR INSTRUCTIONS

If damage is found in the inspections above, repair in accordance with the instructions below.

1. Basket

- a) Repair Basket in accordance with AC43.13-1B, Chapter 4, Section 5, Welding, as required.
- b) Basket is fabricated from the following materials:

Lid and Rim: $\frac{3}{4}$ " x 0.035" square 4130 steel tube Frames: $\frac{3}{2}$ " x 0.035" square 4130 steel tube

Mesh: 3/4" 16 ga. (0.040") expanded carbon steel mesh

c) Touch up with polyurethane paint as required following repairs.

2. Beams

DO NOT REPAIR DAMAGE TO BEAMS IF BEYOND THE LIMITS BELOW.

- a) Nicks and/or gouges on the top or bottom face up to 0.030" deep and 0.125" wide may be dressed out to a smooth contour.
- b) Nicks and/or gouges on the side faces up to 0.060" deep and 0.125" wide may be dressed out to a smooth contour.
- c) Do not repair the hook for the upper basket attachment if spread beyond the limits shown in Figure 3.

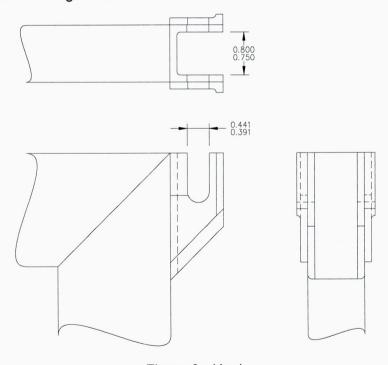


Figure 3 - Hook

- d) Attempt to insert 13/32 drill shank into bottom end of hook slot. If drill can be inserted, slot is worn beyond limit.
- e) Touch up with polyurethane paint as required following repairs.

5-3 PROTECTIVE TREATMENT INFORMATION

1. Beams

The beams are supplied powder coated white. If the powder coat is damaged, touch up with white polyurethane paint.

2. Cargo Basket

The cargo basket is supplied powder coated white. If the powder coat is damaged, touch up with white polyurethane paint.

CHAPTER 11 – MARKINGS AND PLACARDS

The following markings and placards are used with the Quick Release Cargo Basket Installation in the locations noted:

a) Located on basket lid:



b) Located on top of forward beam: 69830-01

c) Located on top of aft beam: 69831-01

CHAPTER 25 – EQUIPMENT AND FURNISHINGS

SECTION 50 - CARGO COMPARTMENTS

25-1 BEAMS INSTALLATION

Refer to Figure 4.

- External Attachment Provisions installed in accordance with drawing 49301 (Bell 206L Series) or 60602 (Bell 407) are required prior to installing the Beams.
- 2. Locate 69830-01 Forward Beam on aft side of Forward Landing Gear Fittings. Install two AN6-20A Bolt and AN960-616 Washer into Barrel Nuts in Fittings. Torque AN6 bolts to 90-110 in-lbs.
- 3. Locate 69831-01 Aft Beam on forward side of Aft Landing Gear Fittings. Install two AN6-20A Bolt and AN960-616 Washer into Barrel Nuts in Fittings. Torque AN6 bolts to 90-110 in-lbs.

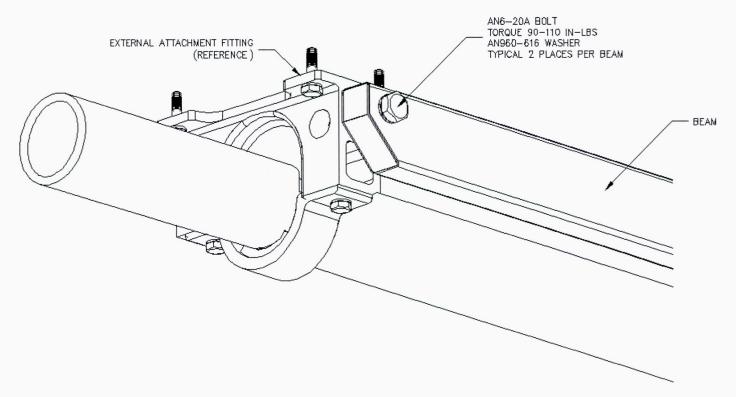


Figure 4 - Beams

25-2 BEAMS REMOVAL

Refer to Figure 4.

- 1. Remove Cargo Basket. Refer to section 25-4.
- 2. Remove two AN6-20A Bolt and AN960-616 Washer from 69830-01 Forward Beam. Remove Forward Beam.

3. Remove two AN6-20A Bolt and AN960-616 Washer from 69831-01 Aft Beam. Remove Aft Beam.

25-3 BASKET INSTALLATION

Refer to Figure 5.

- 1. Set basket upper attachment into hook on forward and aft beams.
- 2. At forward end of basket, lift until lower attachment fitting can enter keyway. Push stop in and slide fitting down into keyway. Push down until locked.
- 3. Repeat step 2 for aft end.

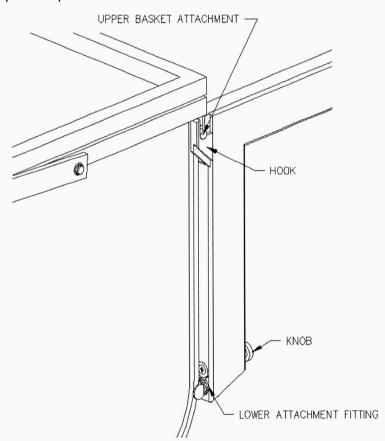


Figure 5 - Basket Attachment

25-4 BASKET REMOVAL

Refer to Figure 8.

- 1. Pull knob at bottom end of forward beam and lift basket until lower attachment fitting is free of keyway. Keep upper basket attachment in hook on beam.
- 2. Pull knob at bottom end of aft beam and lift basket until lower attachment fitting is free of keyway. Keep upper basket attachment in hook on beam.
- 3. Lift basket off hooks and remove from helicopter.

Revision 0 **25-50-00** Page 13

25-5 WEIGHT AND BALANCE

Two weight and balance configurations are required for the pilot. The first is the complete installation of Cargo Basket and Beams. The second is Beams only as the basket may be removed in the field by the pilot.

	Configuration 1		Longitudinal		Lateral	
		Weight	Arm	Moment	Arm	Moment
Part #	Name	(lbs)	(in)	(in-lbs)	(in)	(in-lbs)
69830-01	Forward Beam	10.1	76.4	771.6	10.9	110.1
69831-01	Aft Beam	9.8	151.4	1483.7	12.6	123.5
69810-01	Cargo Basket	45.0	114.1	5134.5	38.5	1732.5
	Total	64.9	113.9	7389.8	30.3	1966.1

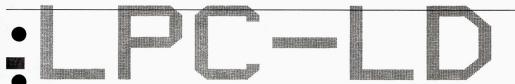
	Configuration 2		Longitudinal		Lateral	
		Weight	Arm	Moment	Arm	Moment
Part #	Name	(lbs)	(in)	(in-lbs)	(in)	(in-lbs)
69830-01	Forward Beam	10.1	76.4	771.6	10.9	110.1
69831-01	Aft Beam	9.8	151.4	1483.7	12.6	123.5
	Total	19.9	113.3	2255.3	11.7	233.6

25-6 STRUCTURAL FASTENER DATA

Refer to Bell Standard Practices Manual BHT-ALL-SPM for torque values not listed in this ICA.

Ber 407 Sliding Door.

1 3 h



Pregis

LENGTH: 250.0

:46334



Ima Marsh

PANCE 173 LEARANCE
19 1 LLEARANCE
19 05 DOOM
PROTON OF DOOM
PROTON MESK

SKINNO STONE FILLING 5 4151 Belly China LEET E BONDS D SHOUP BE

Del 46 6 6 6 mg (AP, 300) M 5re porte USIP StEL wholh (2) P3 MEKUZED MERENCE TWIND J-REMINST FACE OF FITTING

1.193 2.506 1.505

BAHLET C-GELY 407 ED'S POW 407

Organo baskot with hooks formance and rules during the formance an

ALPEN GPCX

Entre of the spire tule at plane of basket bottom

 Calculation of the "K" factor for round hollow tubing subjected to bending stress beyond proportional limit Where:

$$F_b = F_m + F_o \cdot (K-1)$$

Where Fm and Fo must be taken from curves (See Bruhn, chapter C3)

$$M_{rupture} = \frac{F_b \cdot I}{c}$$

Ultimate Bending Moment is found from the elastic bending formula.

Dimensions of the tube:

$$H := 2.0 \cdot in$$

Rectuangular Tube Depth

$$w := 1.0 \cdot in$$

Tube width.

$$t := 0.100 \cdot in$$

Tube wall thickness

$$I := \frac{w \cdot H^{3}}{12} - \frac{(w - 2 \cdot t) \cdot (H - 2 \cdot t)^{3}}{12}$$

Moment of Intertia.

$$I = 0.278 \cdot in^4$$

$$Q := w \cdot t \cdot \frac{H - t}{2} + 2 \cdot t \cdot \left(\frac{H - 2 \cdot t}{2}\right) \cdot \left(\frac{H - 2 \cdot t}{4}\right)$$

Static Moment abour N.A.

$$Q = 0.176 \cdot in^3$$

$$c := \frac{H}{2}$$

Extreme fibre measurement.

$$c = 1.0 \cdot in$$

$$K := \frac{2 \cdot Q}{I} \cdot \frac{H}{2}$$

Plastic Bending Form factor.

$$K = 1.27$$

Ultimate Tensile Strength.

$$F_m = 90 \cdot ksi$$

$$F_0 := 83.1 \cdot ksi$$

$$F_b := F_m + F_o \cdot (K-1)$$

Bending Modulus of Tube.

$$F_{b} = 112 \cdot ksi$$

$$M_{elastic} = \frac{F_{m} \cdot I}{c}$$

Allowable bending moment on tube (using elastic stress)

$$M_{plastic} := \frac{F_b \cdot I}{c}$$

Allowable ultimate bending moment on tube, (taking plastic deformation of the material into consideration).

Note that collapse of the high walls may be the critical mode of failure - not considered here.

AERO DESIGN LTD.

2013 – 39 Avenue N.E., Calgary, Alberta, T2E 6R7

Tel: 403-250-8027 Fax: 403-250-8333 info@aerodesign.ca

1 November, 2007

Your File #: SH00-48

Our File #: Various

Transport Canada Aircraft Certification Division 11th Floor, Canada Place 9700 Jasper Avenue Edmonton, Alberta T5J 4E6

Attn: Jack Staal

Re: Cargo Basket Approval Revisions

Jack,

Please find attached the following documents related to this project:

Supplemental Type Certificate (draft)	✓SH00-48	Issue 6
(High Quick Release Basket) Document Control List Document Control List AE 100 Form AE 100 Form Compliance Program Modification Approval Application Form Engineering Report Test Plan Instructions for Continued Airworthiness MSI 53 Review Flight Manual Supplement (407)	DCL766-1 DCL766-2 AE766-1 AE766-2 CP766 MOD766 ER766.01 TP766.02 ICA766.90 FMS766.91	Revision 0
Flight Manual Supplement (206L)	FMS766.92	Revision 0
Cargo Basket Installation Cargo Basket Assembly	✓76601 ✓ 76610	Revision 0 Revision 0
Cargo Basket Body	✓ 76611	Revision 0
Basket Components - End Hoop Assembly	√ 76621	Revision 0
Basket Comp Attach Hoop Assembly	√76622	Revision 0
Basket Components - Hoop	₹ 76623	Revision 0
Basket Components - Placard	✓ 76625 ✓ 76630	Revision 0 Revision 0
Support Beams Handle Assembly	✓ 36255	Revision 1
Handle Bar Assembly	✓ 36261	Revision 3
Handle Bracket Assembly	36262	Revision 1
Handle Lever	36271	Revision 1
Basket Bracket	36272	Revision 1
Lid Bracket	√ 36273	Revision 1
Bushing Bushing	✓36274 ✓36275	Revision 1 Revision 2

Tel: 403-250-8027 Fax: 403-250-8333 info@aerodesign.ca

		mowacioad
(407 Attachment Provisions) Document Control List AE100 Form Block Fabrication	DCL700 AE700 60620	Revision 1 Revision 1 Revision 1
(Low Fixed Basket) Document Control List Document Control List AE100 Form Cargo Basket Installation (206L) Support Beams (Pocketed Aluminum) Support Beams (Steel) Engineering Report - Pocketed Beams Instructions for Continued Airworthiness Flight Manual Supplement Document Control List AE100 Form Cargo Basket Installation (407) Flight Manual Supplement	DCL492 DCL492-1 VAE492 V49201 V49221 V49222 VER492.04 VICA492.90 VFMS492.01 V DCL606 V AE606 60601 VFMS606.01	Revision 6 Revision 1 Revision 2 Revision 3 Revision 2 Revision 1 Revision 1 Revision 2 Revision 2 Revision 3 Revision 2 Revision 2 Revision 2 Revision 2 Revision 2 Revision 2
(Quick Release Basket Installation) Document Control List AE100 Form Cargo Basket Installation (407) Flight Manual Supplement Document Control List AE100 Form Cargo Basket Installation (206L) Flight Manual Supplement	DCL701 AE701 70101 FMS701.90 DCL702 AE702 70201 FMS702.90	Revision 1 Revision 2 Revision 1 Revision 1 Revision 1 Revision 1 Revision 2 Revision 1
(Quick Release Basket Fabrication) Document Control List AE100 Form Cargo Basket Assembly Basket Body Assembly Basket Components - End Hoop Basket Components - Aft Hoop Instructions for Continued Airworthiness Document Control List AE100 Form Forward Beam Fabrication Aft Beam Fabrication Engineering Report	DCL698-1 AE698-1 69810 69811 69821 69822 ICA698.90 DCL698-2 AE698-2 69830 69831 ER698.04	Revision 1 Revision 2 Revision 2 Revision 1 Revision 0 Revision 1 Revision 2 Revision 1 Revision 2 Revision 2 Revision 2 Revision 2 Revision 0
	AE100 Form Block Fabrication (Low Fixed Basket) Document Control List Document Control List AE100 Form Cargo Basket Installation (206L) Support Beams (Pocketed Aluminum) Support Beams (Steel) Engineering Report - Pocketed Beams Instructions for Continued Airworthiness Flight Manual Supplement Document Control List AE100 Form Cargo Basket Installation (407) Flight Manual Supplement (Quick Release Basket Installation) Document Control List AE100 Form Cargo Basket Installation (407) Flight Manual Supplement Document Control List AE100 Form Cargo Basket Installation (206L) Flight Manual Supplement (Quick Release Basket Fabrication) Document Control List AE100 Form Cargo Basket Assembly Basket Body Assembly Basket Body Assembly Basket Components - End Hoop Basket Components - Aft Hoop Instructions for Continued Airworthiness Document Control List AE100 Form Forward Beam Fabrication Aft Beam Fabrication	Document Control List DCL700 AE100 Form AE700 Block Fabrication 60620 (Low Fixed Basket) Document Control List DCL492 Document Control List DCL492-1 AE100 Form AE492 Cargo Basket Installation (206L) 49201 Support Beams (Pocketed Aluminum) 49221 Support Beams (Steel) 49222 Engineering Report - Pocketed Beams FR492.04 Instructions for Continued Airworthiness Flight Manual Supplement Pocument Control List DCL606 AE100 Form AE606 Cargo Basket Installation (407) 60601 Flight Manual Supplement FMS606.01 Quick Release Basket Installation (407) 70101 Flight Manual Supplement FMS701.90 Document Control List DCL702 AE100 Form AE702 Cargo Basket Installation (206L) 70201 Flight Manual Supplement FMS702.90 (Quick Release Basket Fabrication) Document Control List AE100 Form AE698-1 Cargo B

AERO DESIGN LTD.

2013 - 39 Avenue N.E., Calgary, Alberta, T2E 6R7

Tei 403-250-8027 Fax 403-250-8333 info@aerodesign.ca

Please note the request for a revision to the FAA STC after the Canadian approval is issued.

Regards,

Burgoin, P.Eng, DAR 290M

Encl.

FORM AE-100

DEPARTMENT OF TRANSPORT AE-100 No. AE698-1 STATEMENT OF COMPLIANCE OF AIRCRAFT OR AIRCRAFT Initial Issue Date: 25 May, 2006 COMPONENTS WITH THE AIRWORTHINESS REQUIREMENTS Revision: Revision Date: 1 November 2007 Bell Aircraft Mfgr: Model Type Aircraft Model: 206L Series, 407 Approval No.: SH00-48 Registration: All Eligible Airplane Helicopter Delegation No.: 290M Appliance Delegate Name: E. Burgoin Component Classification of Designee: Employer: AERO Design Ltd. LIST OF APPROVED REPORTS AND DATA Compliance Document Number Document Title Status DCL698-1 Revision 1 Document Control List and all documents referred to therein 69810 Revision 2 Cargo Basket Assembly 69811 Revision 2 Basket Body Assembly 69821 Revision 1 Basket Components - End Hoop 69822 Revision 0 Basket Components - Aft Hoop 36261 Revision 3 Handle Bar Assembly 36271 Revision 1 Handle Lever 36272 Basket Bracket Revision 1 36273 Revision 1 Lid Bracket 36274 Revision 1 Bushing 36275 Revision 2 Bushing DATA APPROVED BY TRANSPORT CANADA CERTIFICATION UNDER THE AUTHORITY VESTED IN ME BY THE DEPARTMENT OF TRANSPORT. I HEREBY CERTIFY THAT THE DATA LISTED ABOVE AND ON THE ATTACHED SHEETS NUMBERED NII HAVE BEEN EXAMINED IN ACCORDANCE WITH ESTABLISHED PROCEDURES AND FOUND TO COMPLY, TO THE BEST OF MY KNOWLEDGE AND BELIEF WITH THE PERTINENT COMPLIANCE REQUIRMENTS. RECOMMEND FOR APPROVAL OF THESE DATA **I THEREFORE** $[\Box]$ APPROVE THESE DATA $[\boxtimes]$ ≛. Burgoin, DAR 290M

FORM AE-100

STATEMENT OF		E OF AIRC	ISPORT RAFT OR AIRCRAFT ESS REQUIREMENTS	AE-100 No.: Initial Issue Date: Revision:	AE698-2 25 May, 2006
Aircraft Mfgr:	Bell		Model Type	Revision Date:	1 November, 2007
Aircraft Model:	206L Series, 4 All Eligible	107	Airplane	Approval No.:	SH00-48
	· ·		Helicopter 🖂 Appliance	Delegation No.: Delegate Name:	290M E. Burgoin
			Component	Classification of Designee: Employer:	AERO Design Ltd.
		1.1:	ST OF APPROVED REPO	RTS AND DATA	
Document N	lumber			nent Title	Compliance
DCL698-2	Revision 2		t Control List and all docum		Status
ER698.04	Revision 0	Engineeri	ng Report		
69830 69831	Revision 2 Revision 2		Beam Fabrication Fabrication		
	*				
	Г		DATA APPROVED BY	TRANSPORT CANADA	
			CERTIFICATIO	ON	
DATA LISTED AE	BOVE AND OF HED PROCED	N THE ATTA DURES ANI	ACHED SHEETS NUMBER D FOUND TO COMPLY, TO	OF TRANSPORT, I HEREBY CI RED NII HAVE BEEN EXAM O THE BEST OF MY KNOWLE	INED IN ACCORDANCE
THEREFORE	[□] RE	ECOMMEN	D FOR APPROVAL OF TH	IESE DATA	
	[⊠] AF	PPROVE TI	HESE DATA	Λ.	
				E. Burgoin, DAR 290M	

APPENDIX A-3 NORMAL CATEGORY ROTORCRAFT - CAR 527

BLOCK 1

Name of the applicant for the design change approval:

Aero Design Ltd.

Description of the design change:

Installation of Quick Release Cargo Basket on Bell Bell 206L Series/407

Certification Basis of design change and revision date:

FAR 27, Amendment 27-30

CAR Standard A527.1(c) Program showing how changes to supplemental ICA made by the applicant or by the manufacturers of products and appliances installed in the aeroplane pursuant to the design change will be distributed:

Section 0-3 of Supplemental ICA (ICA 698.90)

Installation Drawing 70101, 70201

BLOCK 2

Note: Enter "N/A" when no supplemental ICA are needed.

CAR Standard 513.05 (1) (g) (iv): Installation Instructions:

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
A527.2 (a) Manual(s) (a) The Instructions for Continued Airworthiness must be in the form of a manual or manuals as appropriate for the quantity of data to be provided.	ICA ref: Bell Bell 206L Series/407 Maintenance Manuals, BHT-206L-MM BHT-206L1-MM BHT-206L3-MM BHT-206L4-MM BHT-407-MM	Supplemental ICA ref: Single Manual (ICA698.90)
A527.2 (b) Practical arrangement (b) The format of the manual or manuals must provide for a practical arrangement.	ICA ref: Bell Bell 206L Series/407 Maintenance Manual	Supplemental ICA ref: Arranged in ATA format
A527.3 The Instructions for Continued Airworthiness must contain the following manuals or sections, as appropriate, and information:		
A527.3 (a) Rotorcraft maintenance manual or section		
A527.3 (a) (1) (Introduction) (1) Introduction information that includes an explanation of the rotorcraft's features and data to the extent necessary for maintenance or preventive maintenance.	ICA ref: Bell Bell 206L Series/407 Maintenance Manual, Chapter 1	Supplemental ICA ref: Section 0-1

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
A527.3 (a) (2) (Description) (2) A description of the rotorcraft and its systems and installations including its engines, rotors, and appliances.	ICA ref: Bell Bell 206L Series/407 Maintenance Manual, Chapter 1	Supplemental ICA ref: Section 0-5, 0-6
A527.3 (a) (3) Control & Operation (3) Basic control and operation information describing how the rotorcraft components and systems are controlled and how they operate, including any special procedures and limitations that apply.	ICA ref: N/A	Supplemental ICA ref: N/A
A527.3 (a) (4) Servicing (4) Servicing information that covers details regarding servicing points, capacities of tanks, reservoirs, types of fluids to be used, pressures applicable to the various systems, location of access panels for inspection and servicing, locations of lubrication points, lubricants to be used, equipment required for servicing, tow instructions and limitations, mooring, jacking, and levelling information.	ICA ref: Bell Bell 206L Series/407 Maintenance Manual, Chapter 12	Supplemental ICA ref: N/A
A527.3 The Instructions for Continued Airworthiness must contain the following manuals or sections, as appropriate, and information:		
A527.3 (b) Maintenance Instructions. A527.3 (b) (1) Scheduling 1) Scheduling information for each part of the rotorcraft and its engines, auxiliary power units, rotors, accessories, instruments, and equipment that provides the recommended periods at which they should be cleaned, inspected, adjusted, tested, and lubricated, and the degree of inspection, the applicable wear tolerances, and work recommended at these periods. However, the applicant may refer to an accessory, instrument, or equipment manufacturer as the source of this information if the applicant shows that the item has an exceptionally high degree of complexity requiring specialized maintenance techniques, test equipment, or expertise. The recommended overhaul periods and necessary cross-references to the Airworthiness Limitations section of the manual must also be included. In addition, the applicant must include an inspection program that includes the frequency and extent of the inspections necessary to provide for the continued airworthiness of the rotorcraft.	ICA ref: Bell Bell 206L Series/407 Maintenance Manual, Chapter 5	Supplemental ICA ref: Section 5-1

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
A527.3 (b) (2) Troubleshooting (2) Troubleshooting information describing probable malfunctions, how to recognize those malfunctions, and the remedial action for those malfunctions.	ICA ref: N/A	Supplemental ICA ref: N/A
A527.3 (b) (3) Removal/replacement (3) Information describing the order and method of removing and replacing products and parts with any necessary precautions to be taken.	ICA ref: Bell Bell 206L Series/407 Maintenance Manual, Chapter 25	Supplemental ICA ref: Section 25-1 thru 25-4
A527.3 (b) (4) General (4) Other general procedural instructions including procedures for system testing during ground running, symmetry checks, weighing and determining the center of gravity, lifting and shoring, and storage limitations.	ICA ref: Bell Bell 206L Series/407 Maintenance Manual, Chapter 7 and 8	Supplemental ICA ref: Section 25-5
A527.3 (c) Access (c) Diagrams of structural access plates and information needed to gain access for inspections when access plates are not provided.	ICA ref: N/A	Supplemental ICA ref: N/A
A527.3 (d) Special inspections (d) Details for the application of special inspection techniques including radiographic and ultrasonic testing where such processes are specified.	ICA ref: Bell Bell 206L Series/407 Maintenance Manual, Chapter 5	Supplemental ICA ref: Section 5-1
A527.3 (e) Protective treatment (e) Information needed to apply protective treatments to the structure after inspection.	ICA ref: Bell Standard Practices Manual BHT-ALL-SPM, Chapter 3	Supplemental ICA ref: Section 5-3
A527.3 (f) Fasteners, torque values, etc (f) All data relative to structural fasteners such as identification, discard recommendations, and torque values.	ICA ref: Bell Standard Practices Manual BHT-ALL-SPM, Chapter 2	Supplemental ICA ref: Section 25-6
A527.3 (g) Special tools (g) A list of special tools needed.	ICA ref: N/A	Supplemental ICA ref: N/A

ŧ,

BLOCK 3

Note: The statement in block 5 does not constitute an approval of the Airworthiness Limitations Section. Airworthiness Limitations differ from other maintenance tasks, in that they are mandatory, as a direct condition of the approval of the type design. They are therefore referenced directly in the approval document itself. However, they must also be included in the Supplemental Instructions for Continued Airworthiness.

e included in the Supplemental Instructions for Continued Airworthiness.										
A527.4 AWL - Separate Section 1 The Instructions for Continued Airworthiness must contain a section titled Airworthiness Limitations that is segregated and clearly distinguishable from the rest of the document. This section must set forth each mandatory replacement time, structural inspection interval, and related structural inspection procedure approved under 527.571. If the Instructions for Continued Airworthiness consist of multiple documents, the section required by this paragraph must be included in the principal manual. This section must contain a legible statement in a prominent location that reads: "The Airworthiness Limitations section is approved by the Minister and specifies maintenance required by any applicable airworthiness or operating rule unless an alternative program has been approved by the Minister." ICA ref: Bell Bell 206L Series/407 Maintenance Manual, Chapter 4 Supplemental ICA ref: Chapter 4										
BLOCK 4 – Applicant Statement of Compliance										
The Supplemental ICA referenced above comprises the complete listing of supplemental ICA necessary to show compliance with the regulatory standard that supports this change in type design. Applicants Signature: Date: 5 MAY 2006										
Applicants Name: E. Burgoin, P.Eng, DAR 290M										
BLOCK 5 – Minister's Statement of Acceptability										
The design change is adequately supported by existing ICA and/or supplemental ICA, as identified above and is acceptable to the Minister.										
Reviewer's Name: Phone #	Email: M	ail Routing Symbol:								
Signature: Date:		NAPA Number								

26 SEPT, 2006

PHENE CONVERSATION BETWEEN JACK STAAL

JACK WQUIRED WITH FLIGHT TEST IN OTTAWA

BEZL 206LX ON HIGH SKID GEAR X AN OBJECT EXTENDING 18 INCHES BELOW THE HELICOPTER BELLY HAS ADEQUATE CLEARANCE FOR THE CONDITION OF : RESERVE ENERGY ABSORPTION DROP TEST

BELL 407 (ON HIGH SKIDS) OBJECT MAY EXTEND 15.4 INCHES BELOW BELLY FOR SAME CONDITION. 9/30/99 AC 27-1B

b. Procedures.

(1) The determination of compliance can be accomplished in conjunction with the following activities:

- (i) Reviewing type design drawings.
- (ii) Conformity inspections accomplished during certification testing.
- (iii) Be evaluated during the control system proof and operation tests (§§ 27.681 and 27.683).
 - (iv) During type inspection tests and functioning and reliability testing.
- (2) Equipment requiring frequent inspections (at less than 25-hour intervals), lubrication, or adjustments should be accessible through "nonstructural" doors. Areas or items requiring daily attention should be accessible through "nonstructural" doors since properly rated maintenance personnel are required to "open and close" or reinstall structural panels, and special design features, such as multiple pins and latches, are generally necessary for structural doors.

AC 27.613. § 27.613 (Amendment 27-16) MATERIAL STRENGTH PROPERTIES AND DESIGN VALUES.

- a. <u>Explanation</u>. The rule requires the use of materials that have a known minimum strength value. The structure must not be understrength and must be designed to minimize fatigue failure.
- (1) Material design values in certain specified documents may be used. The FAA/AUTHORITY may approve other material design values thus allowing the applicant greater flexibility in selection of materials by proving their strength properties and design values as stated in § 27.613(d).
- (2) Other materials that may be new or are not included in the specified documents may be tested and design values established as provided by § 27.613(a) and (d).
- (3) Section 27.613(d) requires the selection of materials that will retain design values and properties in the type of service environment and for the length of service time intended for the structure.
- (4) Section 27.613(c) is an objective rule concerning minimizing fatigue failures and § 27.571 concerns quantitative fatigue substantiation requirements.

b. Procedures.

AC 27-1B, Chg 1 2/12/03

(1) The properties and design values in the documents noted in the rule may be used.

- (2) MIL-HDBK-5, Metallic Materials and Elements for Flight Vehicle Structure, Chapter 9, contains procedures for establishing design values of additional materials. Uniform means of presenting the data are also contained in this chapter.
- (3) Design values and properties must include effects of the service environment and service time. An example is exposure at elevated temperatures on the ultimate tensile strength of 7079-T6 aluminum alloys as found in figure 3.7.4.1.1(c) of MIL-HDBK-5.
- (4) The probability of disastrous fatigue failures must be minimized. This may be accomplished by using design features usually identified as fail-safe features, such as the following:
- (i) Selection of materials with stress levels to provide a controlled slow rate of crack propagation combined with high residual strength after initiation of cracks (lightly loaded structures).
- (ii) Use of multipath construction and the provision of crack stoppers to limit the growth of cracks.
- (iii) Use of composite (multielement) duplicate structures so that a fatigue crack or failure occurring in one element of the composite (multielement) member will be confined to that element and the remaining structure will still possess adequate load-carrying ability.
- (iv) Use of backup structure wherein one member carries all the load, with a second member available and capable of assuming the extra load if the primary member fails.
- (v) Design to permit detection of cracks including the use of crack detection systems, in all critical structural elements before the cracks can become dangerous or result in appreciable strength loss, and to permit replacement or repair.
- (5) Acceptable standards for pressurized containers or cylinders, such as cylinders of nitrogen, used to inflate emergency floats may be found in 49 CFR 178, Subpart C, §§ 178.36 through 178.68. Specifically, § 178.44 concerns standards for steel cylinders used in aircraft that are subjected to at least 900 PSI service pressure. This standard includes strength, test, material property, inspection, quality, design features, identification, and inspection report requirements. As an example, § 178.44-14, entitled "Hydrostatic Test," requires that each cylinder must be (proof) tested to at least 5/3 times the service pressure. Section 178.44-16, entitled "Burst"

9/30/99 AC 27-1B

Test," also states that one cylinder taken at random out of each lot of cylinders shall be hydrostatically tested to destruction.

(6) Other design criteria may be developed and approved under the provisions of FAR Part 27 as a unique part of the aircraft type design.

AC 27.613A. § 27.613 (Amendment 27-26) MATERIAL STRENGTH PROPERTIES AND DESIGN VALUES.

- a. <u>Explanation</u>. Amendment 27-26 added explicit probability standards criteria to § 27.613(b). This amendment also provided for testing or proving the strength of selected individual items rather than conducting coupon tests to develop generic material strength properties that would be used for design purposes.
 - b. <u>Procedures</u>. The basic procedures of paragraph AC 27.613 still apply, except:
- (1) Probability criteria common with MIL-HDBK-5D are explicitly allowed to determine strengths for metallic materials whose data are not available in MIL-HDBK-5D. These specific probability criteria should be used in conjunction with MIL-HDBK-17B whenever determining material strength properties for non-metallics. (Also, reference paragraph AC 27 MG 8).
- (2) New § 27.613(e) provides for the premium selection of materials. The premium selection of materials method uses a specimen from each individual item (part) to determine its properties before its use is allowed. This is a highly specialized and possibly costly method which applies only to parts that have areas available from which specimens can be obtained without destroying the part. The rotorcraft type design data of those parts made from premium selection should have the necessary information, such as a minimum allowable strength, on the drawing.

AC 27.619. § 27.619 SPECIAL FACTORS.

a. Explanation.

- (1) This is a general rule to complement other rules. Special factors are employed for reasons cited in the rule to ensure an airworthy aircraft structure. The 1.5 ultimate load factor in § 27.303 is multiplied by a special factor as specified in the rule.
- (2) Specific factors are prescribed for castings and fittings in §§ 27.621 and 27.625, respectively. Factors may be prescribed for bearings with free clearance as stated in § 27.623. In addition, any other factor may be prescribed "to ensure that the probability of the part being understrength because of the uncertainties specified in § 27.619(a) is extremely remote."

b. Procedures.

AC 23-19 01/27/03

23.613 Material strength properties and design values (Amendment 23-45)

- (a) No policy available as of June 1, 1994.
- **(b)** No policy available as of June 1, 1994.
- (c) No policy available as of June 1, 1994.
- (d) No policy available as of June 1, 1994.
- (e) Ideally, the structural test article (a whole wing, an empennage, a fuselage, etc.) would contain all elements that are made of specification guaranteed-minimum-strength materials. Furthermore, each element's physical dimensions (geometry) would be at the nominal size, plus or minus specified tolerances, to conservatively represent the least strength or least stiff part that could be used according to approved design data (drawings, specifications, stress, or structural analyses).

Materials delivered according to specifications exceed the guaranteed-minimum-strength called out by drawings 99 times out of 100. Military Handbook Metallic Materials and Elements for Aerospace Vehicle Structures (MIL-HDBK-5), industry, and professional society material specifications intend this result, i.e., with 95 percent confidence that 99 percent of the materials will exceed selected design values. That is, the materials used in the test article (and in production articles) are stronger than the minimum values certificated in the design.

Parts (elements) are manufactured and delivered to nominal sizes within tolerances. This means that they will either deliver minimal performance or more than promised.

There are, fundamentally, four actions an airplane designer can take to determine the strength of the airplane's structure:

- (1) The designer can analyze the airplane structure to both limit and ultimate load conditions, using guaranteed minimum-strength-material properties and conservative geometric characteristics;
- (2) The designer can test the airplane structure to limit loads and then analyze the airplane structure to ultimate loads;
- (3) The designer can test the airplane structure to limit loads and, later, to ultimate conditions; and
- (4) The designer can test the airplane structure to beyond ultimate load conditions.

01/27/03 AC 23-19

This last option is usually chosen to determine excess strength, or growth capabilities. It also exceeds the minimum FAA airworthiness standards for which compliance should be shown. Certain airworthiness standards require one of these methods instead of the others.

An applicant should substantiate that the strength properties of components used in structural tests are such that subsequent components used in airplanes presented for certification will have strengths equal to or exceeding the demonstrated strength of the tested components.

If the applicant chooses to demonstrate strength capability by tests of structural components, the applicant should substantiate that the strength of the tested component conservatively represents the strength of subsequent production components. Substantiating data might include quality control data, material and process specifications, material certifications, coupon sampling tests, or other appropriate information.

An applicant may also apply material correction factors to the applied test loads to account for material variability. Applicants should use material correction factors for ultimate load tests of single load path critical flight structure and for fail-safe tests of dual load path critical flight structure with one load path failed. Applicants do not need to use material correction factors for limit load tests or for ultimate load tests of fail-safe designs where loads from one failed component are distributed to and carried by two or more remaining components.

See 23.603, Materials and workmanship, for additional information about composite or wood materials.

Other useful references: AC 20-33B, Technical Information Regarding Civil Aeronautics Manuals (CAM's) 1, 3, 4a, 4b, 5, 6, 7, 8, 9, 13 and 14; CAM 3, paragraphs 3.174-1 and 3.301-1; and CAM 4a, paragraph 4a.230.

Existing 14 CFR part 23 rules related to the material correction factors are §§ 23.305(a) and (b); 23.307(a); 23.603(a); 23.613(c); and, before Amendment 23-45, § 23.615(a) and (c).

Policy: The intent of § 23.305, paragraphs (a) and (b), Strength and deformation requirements, § 23.307(a), Proof of structure standards, and § 23.603(a)(1), Materials and workmanship regulations, is that the lowest strength conforming airframe produced to a set of FAA-approved type design data will comply with the requirements of § 23.305.

Jeff Clarke

From: Paul Lu [paul@maxpo.ca]

Sent: Tuesday, May 02, 2006 12:58 PM

To: jeff@aerodesign.ca

Subject: Re: Placards

Hi Jeff,

Here are the prices as requested. Let me know if you have any questions.

Thanks, Paul

Decals

- 3.25" x 1.75" finished size / Avery A-6 vinyl, 1 colour print

- Qty. 8 x 2

Price = \$ 45.00 + GST

Plates

- 3.25" x 1.75" finished size / Aluminum / Engraved

- Qty. 8 x 2

Price = \$ 25.00/each

From: Jeff Clarke

To: 'Paul Lu'

Sent: Tuesday, May 02, 2006 9:33 AM

Subject: Placards

Hi Paul,

Just checking on the quote I requested last Monday.

Thank you.

Jeff Clarke

AERO Design Ltd.

Laser Equation Ltd.

"Industrial Cutting Solutions"

2018 41st Avenue N.E. Calgary, AB. T2E 8Z7

Tel: (403) 250-2603 Fax: (403) 735-5123 Email: lasereq@telus.net

REVISED FAX TRANSMITTAL

To: Jeff Clarke P.O. No: N.A.

Number of Pages: 1

QUOTATION

Quotation No.: 39416

Customer No.: 121

Date: April 27, 2006

CUSTOMER:

Acro Design Ltd. 2013 39 Ave. N.E. Calgary AB T2E 6R7 Phone:

(403) 250-8027

Cell: Fax:

(403) 250-8333

PART DESCRIPTION AND PRICE:

 Item No. Part description
 Unit price
 No. of Units Total Price

 1
 Engraved Panel 60645
 \$47.22
 20
 \$944.40

 2
 Engraved Panel 69827
 \$47.22
 20
 \$944.40

 Total
 \$1,888.80

Received and approved by:

Please initial and return with purchase order to authorize job to proceed.

SCOPE:

DESIGN:

Design, drawing and computer file (DXF or otherwise) supplied by Acro

Design Ltd..

Creation of the computer drawing/file

Included

PROGRAMMING: PREPRODUCTION: Laser or Water Jet machine programming.

Production set up.

Production set up. Stainless Steel - 304 - 0.031 22 Ga. - #4 Included Included

MATERIAL:

Supplied by Aero Design Ltd..

Not included Included Walk.

PROCESSING:

Laser cutting (Tolerance 0.005). Water Jet cutting (Tolerance up to 1",

0.010 & 1" & over 0.020) or as stated by LE.

Not included

G.S.T. DELIVERY: Extra

Quotation based on customer pickup of parts at LE's Shop.

Not included

TERMS AND CONDITIONS:

COMPLETION:

Four (4) days days after receipt of order, detailed drawing, computer file (DXF or otherwise) or

material, whichever occurs last. (Delivery dates are only approximate.)

GENERAL:

Standard terms and conditions apply.

Prices subject to increase in material costs from date of quotation or quantity change.

To chifck on the status of your order, please call David Jung @ (403) 250-2576.

Submitted by:

Graham Park

Laser Equation Ltd.

"Industrial Cutting Solutions"



2018 41st Avenue N.E. Calgary, AB, T2E 8Z7

Tel: (403) 250-2603 Fax: (403) 735-5123 Email: lasereq@telus.net

FAX TRANSMITTAL

To: Jeff Clarke P.O. No: N.A.

Number of Pages: 1

QUOTATION

Quotation No.: 39416 Customer No.: 121 Date: April 27, 2006

CUSTOMER:

Aero Design Ltd. 2013 39 Ave. N.E. Calgary AB T2E 6R7 Phone:

(403) 250-8027

Cell: Fax:

(403) 250-8333

PART DESCRIPTION AND PRICE:

No. of Units Total Price Unit price Item No. Part description \$47.65 \$953.00 Engraved Panel 60645 \$47.65 20 \$953.00 2 Engraved Panel 69827 Total \$1,906,00

Received and approved by:

Please initial and return with purchase order to authorize job to proceed.

SCOPE:

DESIGN:

Design, drawing and computer file (DXF or otherwise) supplied by Aero

Design Ltd..

Creation of the computer drawing/file Laser or Water Jet machine programming. Included

PROGRAMMING:

Production set up.

Included Included

PREPRODUCTION: MATERIAL:

Stainless Steel - 304 - 0.031 22 Ga. - #4

Supplied by LEi.

Included Included

PROCESSING:

Laser cutting (Tolerance 0.005). Water Jet cutting (Tolerance up to 1", 0.010 & 1" & over 0.020) or as stated by LE.

G.S.T.

Ouotation based on customer pickup of parts at LE's Shop.

Not included

DELIVERY:

Not included

TERMS AND CONDITIONS:

COMPLETION:

Four (4) days days after receipt of order, detailed drawing, computer file (DXF or otherwise) or

material, whichever occurs last. (Delivery dates are only approximate.)

GENERAL:

Standard terms and conditions apply.

Prices subject to increase in material costs from date of quotation or quantity change.

to on the status of your order, please call David Jung @ (403) 250-2576.

MATERIAL SUPPLIED BY US - WE ALREADY HAVE THE SHEET.

Page 1 of 1

Laser Equation Ltd.

"Industrial Cutting Solutions"

2018 41st Avenue N.E. Calgary, AB. T2E 8Z7

Tel: (403) 250-2603 Fax: (403) 735-5123 Email: lasereq@telus.net

FAX TRANSMITTAL

To: Jeff Clarke P.O. No: N.A.

Number of Pages: 1

QUOTATION

Customer No.: 121 Quotation No.: 39416

Date: April 27, 2006

CUSTOMER:

Acro Design Ltd. 2013 39 Ave. N.E.

Calgary AB T2E 6R7

(403) 250-8027

Phone: Cell:

Fax:

(403) 250-8333

PART DESCRIPTION AND PRICE:

Item Part description No.

Unit price

No. of Total Price

Units

\$93.40 \$93.40 Total \$93.40

Received and approved by:

Engraved Panel

Please initial and return with purchase order to authorize job to proceed.

SCOPE:

DESIGN:

Design, drawing and computer file (DXF or otherwise)

supplied by Aero Design Ltd..

Creation of the computer drawing/file Laser or Water Jet machine programming. Included Included Included

PROGRAMMING: PREPRODUCTION:

Production set up.

Stainless Steel - 304 - 0.031 22 Ga. - #4 Supplied by LEi.

Included

PROCESSING:

MATERIAL:

Laser cutting (Tolerance 0.005). Water Jet cutting (Tolerance

Included

up to 1", 0.010 & 1" & over 0.020) or as stated by LE.

G.S.T.

Extra

Not included

DELIVERY:

Quotation based on customer pickup of parts at LE's Shop.

Not included

TERMS AND CONDITIONS:

COMPLETION:

Four (4) days days after receipt of order, detailed drawing, computer file (DXF or

otherwise) or material, whichever occurs last. (Delivery dates are only

approximate.)

GENERAL:

Standard terms and conditions apply.

Prices subject to increase in material costs from date of quotation or quantity

change.

To check on the status of your order, please call David Jung @ (403) 250-2576.

Submitted by:

Page 1 of 1

CSA G40.21

Standard for Structural Steels
Issued by Canadian Standards Association (CSA)

This standard, known as CSA G40.21 covers six types of structural quality plates, shapes and bars for general construction and engineering purposes.

The six different types covered are:

Type G - General Construction Steel

Type W - Weldable Steels

Type T - Weldable Low Temperature Steels

Type R - Atmospheric Corrosion Resistant Structural Steels

Type A - Atmospheric Corrosion Resistant Structural Steel

Type Q - Quenched and Tempered Low Alloy Steel Plate

AVAILABILITY

These seven strength levels and six types have been combined into eighteen grades as follows:

			Yield S	trength k	si - mPa		
Type	33 230	38 260	44 300	50 350	60 400	70 480	100 700
G	33G 230G			50G 350G	60G 400G		
W	33W 230W	38W 260W	44W 300W	50W 350W	60W 400W	70W 480W	
Т		38T 260T	44T 300T	50T 350T	60T 400T	70T 480T	
R				50R 350R			
Α				50A 350A	60A 400A		
Q							100Q 500Q

TYPE G-A general construction steel meeting minimum strength requirements, but not recommended for low temperature service. Primarily designed for applications requiring bolting. However, can be welded under carefully controlled shop conditions, but not recommended for field welding where control may be difficult to maintain.

TYPE W – Weldable steels for general construction. Available in six strength grades. These steels are widely used for bridges and other dynamically loaded structures. Grade 44W is recommended for normal building construction where field or shop welding procedures are used. Not specifically recommended for low temperature applications.

JIANGSU YULONG STEEL PIPE CO.,LTD

TO WESTUBE LTD SIERIA ARROW OMMODITY: ERW SOUARE AND RECTANGULAR TUBINGS.

PO. NO.: 13524

SPECIFICATION: ASTM A500 GR. C-2003a/CSA G40.21 50W(350W)-2003a

ORIGINAL

DESTINATION: VANCOUVER, BC

PRODUCTION: JAN, 2006 ISSUE DATE: JAN 28,2006

L/C NO: 5FAHD5-00714

NO- YL-38MTC-02

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* Head Office /Bureau Chef

154 Hwy. 540B P.O. Box 390 Gore Bay, ON POP 1HO Ph. 705-844-1789

www.manitoulintransport.com

BILL OF LADING / CONNAISSEMENT

Not negotiable / Non negociable

MANITOULIN TRANSPORT INC

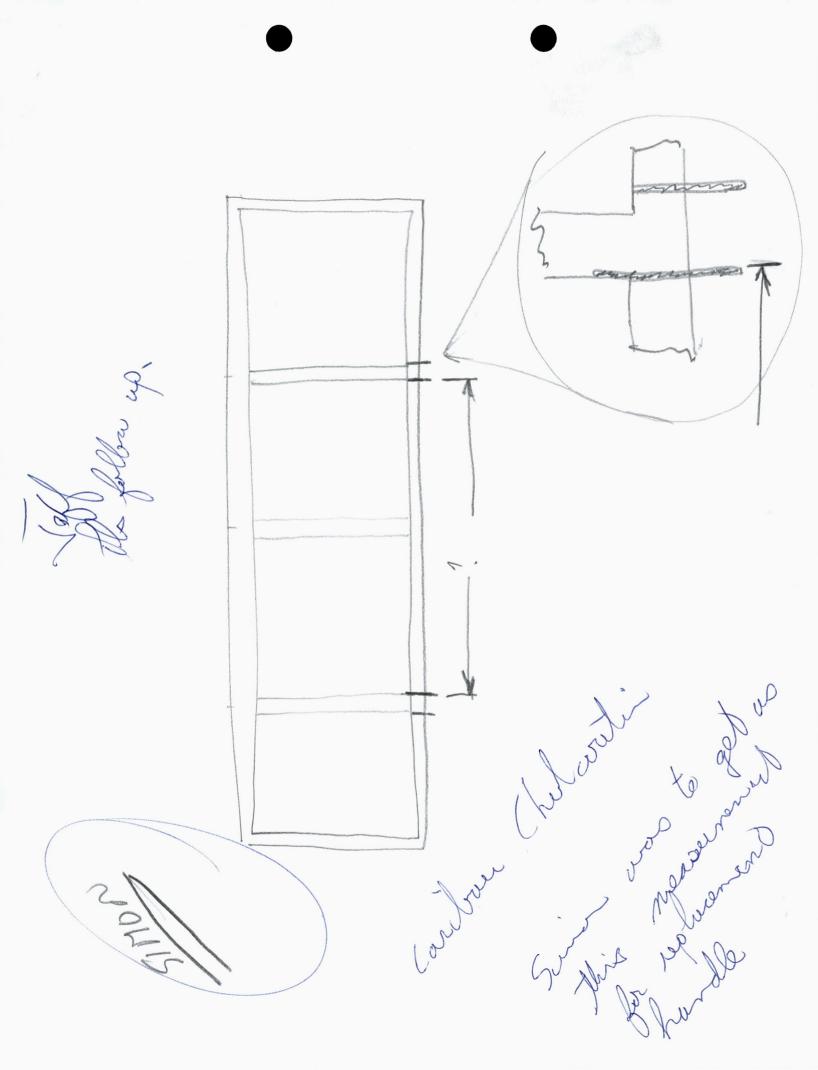
LAKEHEAD FREIGHTWAYS INC. JET TRANSPORT LTD

* REGISTERED QUALITY SYSTEM ISO 9001:2000

Customer Service 1-800-265-1485 Service à la clientèle

BILL OF LADING NO. / № DE CONN. MANITOULIN INTERNA MANITOULIN LOGISTIC																
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WILDERNESS HELICOPTERS
888-554-7662
BLAIR MILLER WAWA, ONT SHIP MANITOULIN GOLLEGT THIL TIBUR



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STRAIGHT BILL OF LADING - NOT NEGOTIABLE

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the origin, des to the originat nine (9) month with a copy of packaged or of RECEIVED except as note to carry and to	LAIM: (a) No carrier is liable for loss, damage or delay to any goods under the Bill of Latitation and date of shipment of the goods and the estimated amount claimed in resign carrier or the delivering carrier within sixty (60 days after the delivery of the goods is from the date of shipment. (b) The final statement of the claim must be filed within the paid freight bill. (c) Carrier(s) are not liable for goods shipped at "OWNERS RISK", ratted. (d) the agreed value on personal effects and/or used commodities does not at the point of origin on the date specified, from the consignor mentioned herein, the d (contents and conditions of contents of package unknown) marked, consigned and or deliver to the consignee at the said	eet of such loss, damage or dela ds, or, in the case of failure to m: nine (9) months from the date of "SHIPPER'S LOAD & COUNT" ar seed \$0.10 per pound, unless off property herein described, in ap estined as indicated below, which	y is given in writing ake delivery, within I shipment together nd/or if not properly herwise specified. oparent good order, h the carrier agrees	classification in effect It is mutually agreed, in all or any of the go including conditions se himself and his assign The Contract for the and is subject to the o	on the date of ship, as to each carrier ods, that every ser et aside by the starns. e carriage of the go conditions set out is	oment. of all or any of the goods ove vice to be performed hereur ideard bill of fading, in power ods listed In the bill of lading in such regulations.	rall or any portion of the route to der shall be subject to all the c at the date of issuing, which a is governed by regulation in fo	In the route to said destination, subject to the destination, and as to each party of any time is conditions not prohibited by law, whether printed are hereby agreed by the consignor and acc roce in the jurisdiction at the time and place of	interested or written, cepted for shipment				
Debtor Re PER	sponsibility: Canadian Freightways Limited reserves the right to	seek payment from the	shipper on any ba	lances owed when	re a Freight Fo			to meet the terms of payment ind	cated.				
SHIPP	ER	loren araban karan Karana araban	CARRIER CANADI	AN FREIC	HTWAY	rs .		TIME APPLIED					
For ship	ment tracking visit: www.canadianfreightways.com	Program (Sec.)					NUMBER OF	PIECES RECEIVED					

A TransForce Company

SCHEDULE OF CONDITIONS OF CARRIAGE

The carrier of the goods herein described is liable for any loss of or damage to goods accepted by the carrier or the carrier's agent except as hereinafter provided.

2. Liability of Originating and Delivering Carriers

Where a shipment is accepted for carriage by more than one carrier, the carrier who issues the bill of lading (hereinafter called the originating carrier) and the carrier who assumes responsibility for delivery to the consignee (hereinafter called the delivering carrier), in addition to any other liability hereunder, are liable for any loss of or damage to the goods while they are in the custody of any other carrier to whom the goods are delivered and from which liability the other carrier is not relieved.

3. Recovery from Connecting Carriers

a. The originating carrier or the delivering carrier, as the case may be, is entitled to recover from any other carrier to whom the goods are delivered the amount that the originating carrier or delivering carrier, as the case may be, is required to pay for the loss of or damage to the goods while they were in the custody of such other carrier. b. If there is a concealed damage settlement and the goods were interlined between carriers so that it is not clear as to who had custody of the goods when they were damaged, the originating carrier or delivering carrier, as the case may be, is entitled to recover from each of the interlined carriers an amount prorated on the basis of each carrier's revenue for carriage of the damaged goods.

4. Remedy by Consignor or Consignee

Nothing in Article 2 or 3 deprives a consignor or consignee of any rights the consignor or consignee may have against any carrier.

The carrier shall not be liable for loss, damage or delay to any of the goods described in the bill of lading caused by an act of God, the Queen's or public enemies, riots, strikes, a defect or inherent vice in the goods, an act or default of the consignor, owner or consignee, authority of law, quarantine or difference in weights of grain, seed or other commodities caused by natural shrinkage.

No carrier is bound to carry goods by any particular public truck or in time for any particular market or otherwise than with due dispatch, unless by agreement that is specifically endorsed on the bill of lading and signed by the parties. Routing by Carrier

If the carrier forwards the goods by a conveyance that is not a public truck, the liability of the carrier is the same as though the entire carriage were by public truck,

If goods are stopped and held in transit at the request of the party entitled to so request, the goods are held at the risk of that party.

Subject to Article 10, the amount of any loss or damage for which the carrier is liable, whether or not the loss or damage results from negligence, shall be the lesser of, a. the value of the goods at the place and time of shipment, including the freight and other charges if paid; or

b. where a value lower than that referred to in paragraph (a) has been represented in writing by the consignor or has been agreed upon, such lower value shall be the maximum liability.

The amount of any loss or damage computed under paragraph (a) or (b) of article 9, shall not exceed \$2.00 per pound unless a higher value is declared on the face of

11. Consignor's Risk

a. If it is agreed that the goods are carried at the risk of the consignor, such agreement covers only such risks as are necessarily incidental to the carriage and the agreement does not relieve the carrier from liability for any loss or damage or delay that results from the negligence of the carrier or the carrier's agents or employees. b. The burden of proving absence of negligence shall be on the carrier.

a. No carrier is liable for loss, damage or delay to any goods carried under the bill of lading unless notice thereof setting out particulars of the origin, destination and date of shipment of the goods and the estimated amount claimed in respect of such loss, damage or delay is given in writing to the originating carrier or the delivering carrier within sixty days after delivery of the goods or, in the case of failure to make delivery, within nine months from the date of shipment.

b. The final statement of the claim must be filed within nine months from the date of shipment, together with a copy of the paid freight bill.

13. Articles of Extraordinary Value

a. No carrier is bound to carry any documents, specie, or articles of extraordinary value unless by a special agreement to do so.

b. If such goods are carried without a special agreement and the nature of the goods is not disclosed on the bill of lading, the carrier shall not be liable for any loss or damage in excess of the maximum liability stipulated in Article 10.

14. Freight Charges

a. If required by the carrier, the freight and all other lawful charges accruing on the goods shall be paid before delivery.

b. If upon inspection it is ascertained that the goods shipped are not those described in the bill of lading, the freight charges must be paid upon the goods actually shipped with any additional charges lawfully payable thereon.

c. If a consignor does not indicate that a shipment is to move prepaid, or does not indicate how the shipment is to move, it will automatically move on a collect basis.

Every person, whether as principal or agent, shipping dangerous goods without previous full disclosure to the carrier as required by law, shall indemnify the carrier. against all loss, damage or delay caused by the failure to disclose and such goods may be warehoused at the consignor's risk and expense.

a. If, through no fault of the carrier, the goods cannot be delivered, the carrier shall immediately give notice to the consignor and consignee that delivery cannot be made and shall request disposal instructions.

i. the goods may be stored in the warehouse of the carrier, subject to a reasonable charge for storage, or

ii. if the carrier has notified the consignor of this intention, the goods may be removed to and stored in a public or licensed warehouse at the expense of the consignor, without liability on the part of the carrier, and subject to a lien for all freight and other lawful charges, including a reasonable charge for storage.

If a notice has been given by the carrier pursuant to Article 16a, and no disposal instructions have been received within ten (10) days from the date of such notice, the carrier may return to the consignor, at the consignor's expense, all undelivered shipments for which such notice has been given.

18. Alterations

Subject to Article 19, any limitation on the carrier's liability on the bill of lading and any alteration to the bill of lading shall be signed or initialled by the consignor and the originating carrier or their agents and unless signed and initialled shall be without effect.

a. It shall be the responsibility of the consignor to show correct shipping weights of the shipment on the bill of lading.

b. If the actual weight of the shipment does not agree with the weight shown on the bill of lading, the weight shown on the bill of lading may be corrected by the carrier.

a. A carrier shall not deliver a C.O.D. shipment unless payment is received in full.

b. The charge for collecting and remitting the amount of C.O.D. bills for C.O.D. shipments must be collected from the consignee unless the consignor has instructed otherwise on the bill of lading.

c. A carrier shall remit all C.O.D. money to the consignor, or person designated by the consignor, within fifteen days after collection.

d. A carrier shall keep all C.O.D. money in a trust fund or account separate from the other revenues and funds of the carrier's business.

e. A carrier shall include the charges for collecting and remitting money paid by consignees as a separate item in the schedule of rates.

Heidi Lussi 250-549-4161

WEBSITE: www.heidilussi.com E-MAIL: heidi@heidilussi.com

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W-120 Display pack	81012-D	U.S. gal.: 1 ¹ / ₄ Litres: 4.7	Red	L.: 41 ³ / ₄ in./106 cm W.: 25 ³ / ₄ in./65.7 cm H.: 27 in./68.4 cm	lb.: 59.4 Kg.: 26.9 54/case	Ft. ³ : 16.8 m. ³ : 0.48
W-220	81022	U.S. gal.: 2 ¹ / ₂ Litres: 9.4	Red	L.: 22 ³ / ₄ in./57.8 cm W.: 20 ¹ / ₄ in./51.4 cm H.: 12 ¹ / ₄ in./31.1 cm	Lb.: 12.75 Kg.: 5.78 6/case	Ft. ³ : 3.3 m. ³ : 0.09
W-220 Display pack	81022-D	U.S. gal.: 2 ¹ / ₂ Litres: 9.4	Red	L.: 35 ¹ / ₄ in./89.7 cm W.: 23 ³ / ₄ in./60 cm H.: 34 ¹ / ₄ in./87 cm	lb.: 44.7 Kg.: 20.3 30/case	Ft.3: 16.5 m.3: 0.47
W-222 2 pack	81222	U.S. gal.: 2 ¹ / ₂ Litres: 9.4	Red	L: 39 ¹ / ₂ in./100.3 cm W: 36 in./91.4 cm H: 44 ³ / ₄ in./113.7 cm	Lb.: 148.7 Kg.: 67.4 36/pallet	Ft.3: 36.8 m.3: 1.04
W-320	81032	U.S. gal.: 4 Litres: 15	Red	L.: 26 ¹ / ₄ in./66.7 cm W.: 15 ³ / ₄ in./40 cm H.: 23 ¹ / ₄ in./59.1 cm	lb.: 18.6 Kg.: 8.45 6/case	Ft.3: 5.6 m.3: 0.10
W-500	81050	U.S. gal.: 5.8 Litres: 22	Red	L.: 29 in./73.7 cm W.: 15 ³ / ₄ in./40 cm H.: 19 in./48.3 cm	lb.: 15.7 Kg.: 7.14 4/case	Ft. ³ : 5 m. ³ : 0.14
W-520	81052	U.S. gal.: 5 Litres: 20	Red	L.: 29 ¹ / ₂ in./74.9 cm W.: 15 in./38.1 cm H.: 24 in./61 cm	lb.: 19.5 Kg.: 8.9 6/case	Ft.3: 6.2 m.3: 0.17
W-620	81062	U.S. gal.: 6.6 Litres: 25	Red	L.: 33 in./83.8 cm W.: 16 ³ / ₄ in./42.5 cm H.: 25 in./63.5 cm	lb.: 27 Kg.: 12.24 6/case	Ft. ³ : 8 m. ³ : 0.23

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Transport Canada

Transports Canada

Department of Transport

Supplemental Type Certificate

This approval is issued to:

Number: SH00-48

Aero Design Ltd.

Issue No.:

2013 39th Avenue North East

Approval Date:

December 08, 2000

Calgary, Alberta

Issue Date:

June 09, 2006

Canada T2E 6R7

Responsible Office:

Prairie and Northern

Aircraft/Engine Type or Model:

BELL 206L, 206L-1, 206L-3, 206L-4, 407

Canadian Type Certificate or Equivalent:

H-92

Description of Type Design Change:

Installation of Cargo Basket / External Attachment

Provisions/Auxiliary step.

Installation/Operating Data, Required Equipment and Limitations:

Bell 407 only:

407 Configuration A - External Attachment Provisions Only:

Installation of the External Attachment Provisions is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 700, Revision 0, dated 10 May 2006, or later approved revision.

AERO Design Ltd., Instructions for Continued Airworthiness ICA 700.90, Revision 0, dated 3 May 2006, or later accepted revision, is required with this installation.

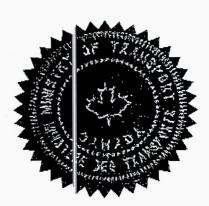
Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS700.91, Revision 0,dated 4 May 2006, or later approved revision, is required with this installation.

External Attachment Provisions installed in accordance with DCL700 may remain installed if the basket installation is removed.

Basis of Certification remains as defined in the applicable Type Certificate Data Sheets.

AIRCRAFT CERT.

(continued on page 2)



Conditions: This approval is only applicable to the type/model of aeronautical product specified therein. Prior to incorporating this modification, the installer shall establish that the interrelationship between this change and any other modification(s) incorporated will not adversely affect the airworthiness of the modified product.

> D.S. Austen For Minister of Transport

> > anadä



Number: SH00-48 Issue 5

NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

Bell 407 only: (Continued) 407 Configuration B - External Cargo Basket Low Mounted

Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration B, External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL606, Revision 2, dated 10 May 2006, or later approved revision. High skid gear is required for the basket installation. Placard is required on the basket lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS 606.01, Revision 1, dated 01 February 2005, or later approved revision, is required with this installation.

AERO Design Ltd. Instructions for Continued Airworthiness ICA492.90, Revision 0, dated 4 May 2006, or later Transport Canada accepted revision, is required with this installation.

Basis of Certification remains as defined in the applicable Type Certificate Data Sheets.

407 Configuration C - External Cargo Basket Installation High Mounted

Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration C, External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL606-1, Revision 0, dated 1 February 2005, or later approved revision. Approved emergency exit "push out" windows or an approved sliding door are required on the side of the helicopter that the basket is installed on if passengers are to be carried. Placard required on the basket lid.

Transport Canada approved AERO Design Ltd., Flight Manual Supplement FMS 606.01 Revision 1 dated 01 February 2005, or later approved revision, is required with this installation.

(continued on page 3)



Number: SH00-48 Issue 5

NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

<u>Bell 407 only: (Continued)</u>
407 Configuration C - External Cargo Basket Installation High Mounted (continued)

AERO Design Ltd., Maintenance Instructions MI606.01 Revision 2, dated 19 July 2004, or later accepted revision, are required with this installation.

Basis of Certification remains as defined in the applicable Type Certificate Data Sheets.

407 Configuration C- External Cargo Basket Installation Low Mounted Quick Release

Installation of Configuration A, External Attachment Provisions, is a prerequisite for installation of Configuration D, External Cargo Basket Installation. Installation of the Cargo Basket is to be completed in accordance with Transport Canada approved AERO Design Ltd., Document Control List DCL 701, Revision 0, dated 10 May 2006, or later approved revision. High skid gear is required for the basket installation. Placard required on the lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS701.90, Revision 0, dated 5 May 2006, or later approved revision is required with this installation.

AERO Design Ltd., Instructions for Continued Airworthiness ICA 698.90, Revision 0, dated 20 April 2006, or later accepted revision is required with this installation.

Basis of Certification is defined by the applicable Type Certificate Data Sheets.

Bell 206L, L-1, L-3, L-4 only: 206L Series Configuration A – External Attachment Provisions Only:

Installation of the External Attachment Provisions is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL 493, Revision 6, dated 10 May 2006, or later approved revision.

(continued on page 4)



Number: SH00-48 Issue 5

NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

<u>Bell 206L, L-1, L-3, L-4 only</u>: (continued)
206L Series Configuration A - External Attachment Provisions Only: (continued)

Transport Canada approved AERO Design Ltd. Flight Manual Supplement FMS 493.01, Revision 0, dated 19 May 2002, or later approved revision, is required with this installation.

AERO Design Ltd. Instructions for Continued Airworthiness ICA 493.90, Revision 0, dated 4 May 2006, or later Transport Canada accepted revision, is required with this installation.

External Attachment Provisions installed in accordance with DCL493 may remain installed if the basket installation is removed.

Basis of Certification is as defined in the Type Certificate Data Sheets, plus FAR27 at amendment 27-24.

206L Series Configuration B - External Cargo Basket Low Mounted:

Installation of Configuration A, External Attachment Provisions is a prerequisite for installation of Configuration B, External Cargo Basket installation. Installation of the cargo basket is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL492, Revision E, dated 10 May 2006, or later approved revision. High skid gear is required for the basket installation. Placard is required on the basket lid.

Transport Canada approved AERO Design Ltd., Flight Manual Supplement FMS 492.01, Revision 1, dated 25 June 2002, or later approved revision, is required with this installation.

AERO Design Ltd., Instructions for Continued Airworthiness ICA492.90, Revision 0, dated 4 May 2006, or later Transport Canada accepted revision, is required with this installation.

Basis of Certification is as defined in the Type Certificate Data Sheets, plus FAR27 at amendment 27-24.

(continued on page 5)



Number: SH00-48 Issue 5

NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

206L Series Configuration C - External Cargo Basket Installation Low Mounted Quick Release

Installation of Configuration A, External Attachment Provisions, is a prerequisite for installation of Configuration C, External Cargo Basket Installation. Installation of the Cargo Basket is to be completed in accordance with Transport Canada approved AERO Design Ltd., Document Control List DCL 702, Revision 0 dated 10 May 2006, or later approved revision. High skid gear is required for the basket installation. Placard required on the lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS702.90, Revision 0, dated 5 May 2006, or later approved revision is required with this installation.

AERO Design Ltd., Instructions for Continued Airworthiness ICA 698.90, Revision 0, dated 20 April 2006, or later accepted revision is required with this installation.

Basis of Certification is defined by the applicable Type Certificate Data Sheets, plus FAR 27 amendment 27-30.

All Models (Bell 206L series and 407)

Auxiliary Step Installation:

Installation of the Auxiliary Step is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL623, Revision 0, dated 13 Jan 2005, or later approved revision.

The auxiliary step is optional and is not required with installation of Configuration B or C.

Auxiliary Step installed in accordance with DCL623 may remain installed if the basket installation is removed.

Basis of Certification is as defined in the Type Certificate Data Sheets, plus FAR27 amendment 27-30. (continued on page 6)



Number: SH00-48 Issue 5

NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

All Models (Bell 206L series and 407)(continued) Cargo Basket Modifications:

Modifications to the cargo basket configurations are eligible in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL704, Revision 0, dated 10 May 2006, or later approved revision. Eligibility limitations are noted on the drawings.

- End -

DOCUMENT CONTROL LIST

DOCUMENT NO.	DOCU	MENT CONTENT	REVISION
FABRICATION DOCUMENTS			
69810 69811 69812 69821 69823 69824 69825 69826 69827	Cargo Basket Asser Basket Body Assem Basket Lid Assembl Basket Components Basket Components Basket Components Basket Components Basket Components Basket Components	0 0 0 0 0 0	
49210 49212 49213 49215 49216	Basket Components Basket Components Basket Components Basket Components Basket Components	1 0 1 0	
36255 36261 36262 36271 36272 36273 36274 36275 36276 36276 36277 36278 36280, Sheet 1	Handle Assembly Handle Bar Assemb Handle Bracket Ass Handle Lever Basket Bracket Lid Bracket Bushing Bushing Spring Hook Handle Bar Spring Brace Brace	1 1 0 0 0 1 0 0 1 2 2	
ENGINEERING DOCUMENTS ER698.01	Engineering Report		0
APPROVAL: Transport Transports Canada Canada AIRCRAFT CERTIFICATION DIVISION	ORIGINAL DATE: 3 May, 2006 REVISION DATE:	AERO DESIGN 2013 – 39 th Ave NE, Calgary, AI Ph. (403) 250-802 Fax. (403) 250-833	berta, T2E 6R7 7
APPROVED By S. Suntan	SHEET 1 OF 1	Cargo ably	
Appr'l Date <u>DO-12-08</u> Islue No. <u>5</u> Islue Date <u>DO-00-09</u> YY-MM-DD	DC	O	

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DOCUMENT CONTROL LIST

DOCUMENT NO.	DOCU	MENT CONTENT	REVISION
FABRICATION DOCUMENTS 69830	Forward Beam Fabi	rication	0
69831	Aft Beam Fabricatio		O
ENGINEERING DOCUMENTS ER698.02	Engineering Report		0
TP698.03	Test Plan		0
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ICA 698.90 AERO Design Ltd.

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS ICA 698.90

QUICK RELEASE CARGO BASKET

Preface

These Instructions for Continued Airworthiness shall be included in the rotorcraft Maintenance Manual when the Quick Release Cargo Basket assembled in accordance with AERO Design Ltd. Document Control List DCL698-1, Revision 0, and DCL698-2, Revision 0, or later approved revision, is installed.

The information contained herein supplements the information in the basic Maintenance Manual. For Maintenance practices and procedures not contained in these Instructions for Continued Airworthiness refer to the basic Maintenance Manual and its approved supplements.

> Revision 0 Date: 20 April, 2006

AERO Design Ltd. **Engineering Consultants** 2013 – 39th Avenue N.E., Calgary, Alberta T2E 6R7

Phone: (403) 250-8027

Fax: (403) 250-8333 E-Mail: aerodesign@telusplanet.net

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RECORD OF REVISIONS

Revision Number	Issue Date	Date Inserted	Ву
0			Original Issue

LIST OF EFFECTIVE PAGES

Revision 0 (Original Issue) 20 April, 2006

List of Effective Pages		
Description	<u>Pages</u>	Revision No.
Cover	1	0
Revision Record/List of Effective Pages	2	0
Table of Contents	3	0
00-00-00	4-6	0
04-00-00	7	0
05-00-00	8-9	0
11-00-00	11	0
25-50-00	12-14	0

List of Revisions

TABLE OF CONTENTS

RECORD OF F	REVISIONS	2
LIST OF EFFE	CTIVE PAGES	2
CHAPTER 0 -	INTRODUCTION	4
0-1	SCOPE	4
0-2	DEFINITIONS AND ABBREVIATIONS	4
0-3	DISTRIBUTION	4
0-4	COMPATIBILITY	4
0-5	GENERAL DESCRIPTION	5
0-6	STRUCTURAL PROVISIONS	6
CHAPTER 4 - A	AIRWORTHINESS LIMITATIONS	7
CHAPTER 5 -	INSPECTION REQUIREMENTS	8
5-1	INSPECTION SCHEDULE	8
5-2	DAMAGE LIMITS / REPAIR INSTRUCTIONS	9
5-3	PROTECTIVE TREATMENT INFORMATION	10
CHAPTER 11 -	– MARKINGS AND PLACARDS	11
CHAPTER 25 -	– EQUIPMENT AND FURNISHINGS	12
SECT	ION 50 – CARGO COMPARTMENTS	12
25-1	BEAMS INSTALLATION	12
25-2	BEAMS REMOVAL	12
25-3	BASKET INSTALLATION	13
25-4	BASKET REMOVAL	13
25-5	WEIGHT AND BALANCE	14
25-6	STRUCTURAL FASTENER DATA	14

CHAPTER 0 - INTRODUCTION

0-1 SCOPE

The following Instructions for Continued Airworthiness (ICA) satisfy the requirements of 14 CFR 27.1529, and provide the information necessary to complete the on-going maintenance and inspections required for rotorcraft embodying the Quick Release Cargo Basket as described herein.

0-2 DEFINITIONS AND ABBREVIATIONS

ICA - Instructions for Continued Airworthiness

LH - Left Hand

RH - Right Hand

0-3 DISTRIBUTION

Copies of this ICA and amendments shall be distributed to all known purchasers of the Quick Release Cargo Basket. Requests for a copy may be made in writing to:

AERO Design Ltd. 2013 39th Avenue N.E. Calgary, Alberta T2E 6R7

Fax: 403-250-8333

Email: info@aerodesign.ca

Any changes will be sent to Transport Canada. All changes will be recorded in the Record of Revisions page at the front of this document.

0-4 COMPATIBILITY

Prior to incorporating this modification, the installer shall establish that the interrelationship between this change and any other modification(s) incorporated will not adversely affect the airworthiness of the helicopter.

0-5 GENERAL DESCRIPTION

The cargo basket installation is a metal mesh basket installed to the side of the helicopter on beams attached to landing gear fittings with attachment provisions incorporated. The quick release basket allows for the installation and removal of the basket without tools, allowing a pilot operating in the field without maintenance support to install or remove the basket.

The basket itself is 75.75" long, 22.5" wide, and 17" high. It is made of a 4130 steel welded tubing structure, and lined with expanded steel mesh. The basket has a hinged lid with a self-locking handle.

The beams are steel tubing which attach to the landing gear fittings and stick out from the side of the helicopter. The quick release mechanism is built into the beams.

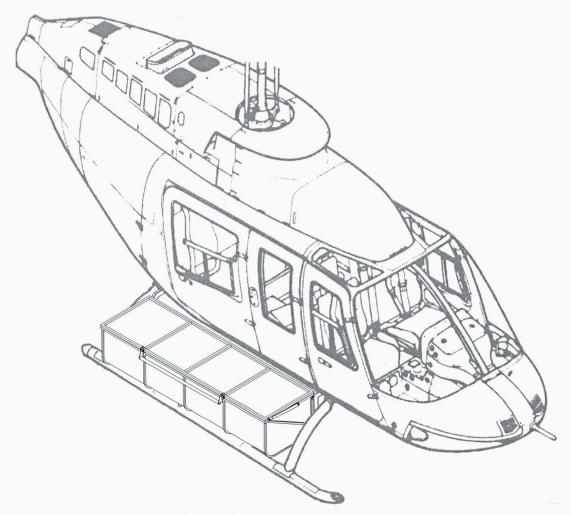


Figure 1 – Cargo Basket Installation

0-6 STRUCTURAL PROVISIONS

The External Attachment Provisions are installed on the helicopter in accordance with drawing 49301 (Bell 206L Series) or 60602 (Bell 407). That installation is separate from the basket installation. The External Attachment Provisions are not included in this ICA.

The external attachment provisions consist of replacement landing gear fittings that incorporate a barrel nut for installing equipment. Each fitting is bolted to the lower fuselage and landing gear with the same fasteners as used for the original fittings, as shown in Figure 2.

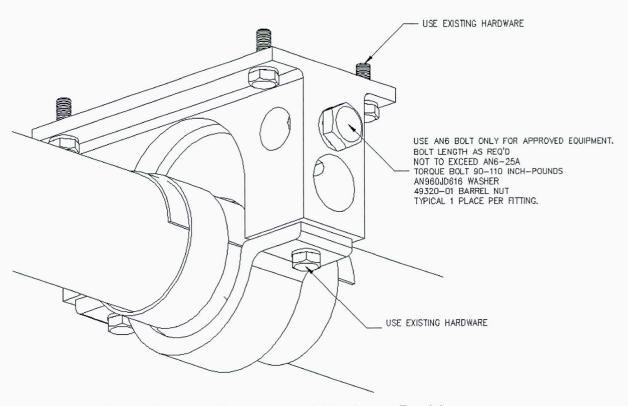


Figure 2 - Installation of External Attachment Provisions

CHAPTER 4 - AIRWORTHINESS LIMITATIONS

The Airworthiness Limitations section is Transport Canada-approved and specifies maintenance required under Section 571 of the Canadian Aviation Regulations, unless an alternative program has been approved.

No additional airworthiness limitations have been imposed due the installation of the Quick Release Cargo Basket.

CHAPTER 5 – INSPECTION REQUIREMENTS

5-1 INSPECTION SCHEDULE

Continued airworthiness is contingent upon compliance with the following inspection items. These items shall be completed in conjunction with the rotorcraft Maintenance Inspection schedule, or other approved program, or upon removal and replacement of any component of Quick Release Cargo Basket.

Daily Inspection

- 1. Inspection Area: Basket
 - a) Inspect the basket attachment to the beams for condition and security. Ensure quick release mechanism is completely extended, flush with the outboard surface of the beam.
 - b) Inspect latching of the lid for correct operation. If basket is bent inward the lid will close but may not latch.

300 Hour or Annual Inspection

- 1. Inspection Area: Basket
 - a) Visually inspect tube-to-tube welds and mesh-to-tube welds for cracks, corrosion or other damage.
 - b) Visually inspect basket mesh for damage.
- 2. Inspection Area: Beams
 - a) Visually inspect beams attaching basket to the helicopter for cracks, corrosion or other damage.
 - b) Visually inspect lugs attaching the basket to the beams hours for security and damage.
 - c) Visually inspect bolts attaching beams to external attachment provisions for security and damage.

Special Inspections

Following a hard landing inspect the Quick Release Cargo Basket installation in accordance with the 300 hour or annual inspection listed above.

5-2 DAMAGE LIMITS / REPAIR INSTRUCTIONS

If damage is found in the inspections above, repair in accordance with the instructions below.

1. Basket

- a) Repair Basket in accordance with AC43.13-1B, Chapter 4, Section 5, Welding, as required.
- b) Basket is fabricated from the following materials:

Lid and Rim: $\frac{3}{4}$ " x 0.035" square 4130 steel tube Frames: $\frac{3}{2}$ " x 0.035" square 4130 steel tube

Mesh: 3/4" 16 ga. (0.040") expanded carbon steel mesh

c) Touch up with polyurethane paint as required following repairs.

2. Beams

DO NOT REPAIR DAMAGE TO BEAMS IF BEYOND THE LIMITS BELOW.

- a) Nicks and/or gouges on the top or bottom face up to 0.030" deep and 0.125" wide may be dressed out to a smooth contour.
- b) Nicks and/or gouges on the side faces up to 0.060" deep and 0.125" wide may be dressed out to a smooth contour.
- c) Do not repair the hook for the upper basket attachment if spread beyond the limits shown in Figure 3.

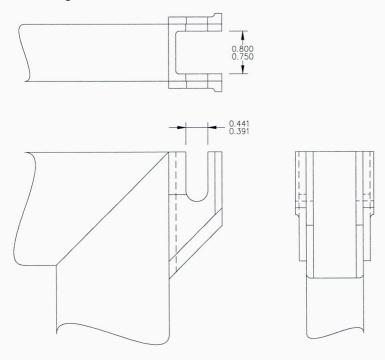


Figure 3 - Hook

- d) Attempt to insert 13/32 drill shank into bottom end of hook slot. If drill can be inserted, slot is worn beyond limit.
- e) Touch up with polyurethane paint as required following repairs.

05-00-00 Page 9

5-3 PROTECTIVE TREATMENT INFORMATION

1. Beams

The beams are supplied powder coated white. If the powder coat is damaged, touch up with white polyurethane paint.

2. Cargo Basket

The cargo basket is supplied powder coated white. If the powder coat is damaged, touch up with white polyurethane paint.

CHAPTER 11 – MARKINGS AND PLACARDS

The following markings and placards are used with the Quick Release Cargo Basket Installation in the locations noted:

a) Located on basket lid:



b) Located on top of forward beam:

69830-01

c) Located on top of aft beam:

69831-01

CHAPTER 25 – EQUIPMENT AND FURNISHINGS

SECTION 50 - CARGO COMPARTMENTS

25-1 BEAMS INSTALLATION

Refer to Figure 4.

- 1. External Attachment Provisions installed in accordance with drawing 49301 (Bell 206L Series) or 60602 (Bell 407) are required prior to installing the Beams.
- 2. Locate 69830-01 Forward Beam on aft side of Forward Landing Gear Fittings. Install two AN6-20A Bolt and AN960-616 Washer into Barrel Nuts in Fittings. Torque AN6 bolts to 90-110 in-lbs.
- 3. Locate 69831-01 Aft Beam on forward side of Aft Landing Gear Fittings. Install two AN6-20A Bolt and AN960-616 Washer into Barrel Nuts in Fittings. Torque AN6 bolts to 90-110 in-lbs.

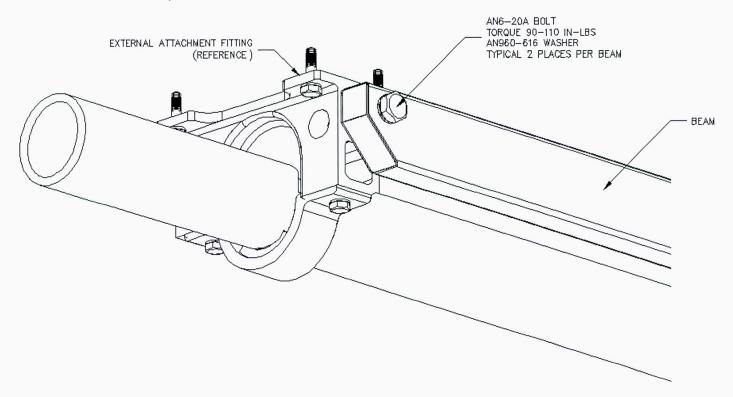


Figure 4 - Beams

25-2 BEAMS REMOVAL

Refer to Figure 4.

- 1. Remove Cargo Basket. Refer to section 25-4.
- 2. Remove two AN6-20A Bolt and AN960-616 Washer from 69830-01 Forward Beam. Remove Forward Beam.

Revision 0 **25-50-00** Page 12

3. Remove two AN6-20A Bolt and AN960-616 Washer from 69831-01 Aft Beam. Remove Aft Beam.

25-3 BASKET INSTALLATION

Refer to Figure 5.

- 1. Set basket upper attachment into hook on forward and aft beams.
- 2. At forward end of basket, lift until lower attachment fitting can enter keyway. Push stop in and slide fitting down into keyway. Push down until locked.
- 3. Repeat step 2 for aft end.

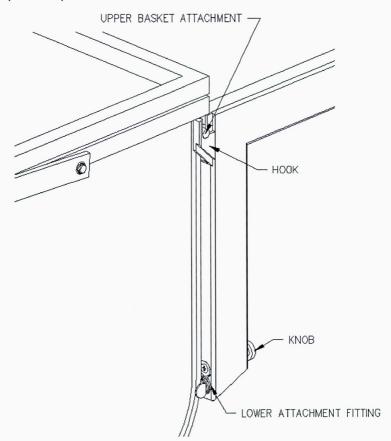


Figure 5 - Basket Attachment

25-4 BASKET REMOVAL

Refer to Figure 8.

- 1. Pull knob at bottom end of forward beam and lift basket until lower attachment fitting is free of keyway. Keep upper basket attachment in hook on beam.
- 2. Pull knob at bottom end of aft beam and lift basket until lower attachment fitting is free of keyway. Keep upper basket attachment in hook on beam.
- 3. Lift basket off hooks and remove from helicopter.

Revision 0 **25-50-00** Page 13

25-5 WEIGHT AND BALANCE

Two weight and balance configurations are required for the pilot. The first is the complete installation of Cargo Basket and Beams. The second is Beams only as the basket may be removed in the field by the pilot.

Configuration 1			Longitudinal		Lateral	
		Weight	Arm	Moment	Arm	Moment
Part #	Name	(lbs)	(in)	(in-lbs)	(in)	(in-lbs)
69830-01	Forward Beam	10.1	76.4	771.6	10.9	110.1
69831-01	Aft Beam	9.8	151.4	1483.7	12.6	123.5
69810-01	Cargo Basket	45.0	114.1	5134.5	38.5	1732.5
	Total	64.9	113.9	7389.8	30.3	1966.1

Configuration 2			Longitudinal		Lateral	
		Weight	Arm	Moment	Arm	Moment
Part #	Name	(lbs)	(in)	(in-lbs)	(in)	(in-lbs)
69830-01	Forward Beam	10.1	76.4	771.6	10.9	110.1
69831-01	Aft Beam	9.8	151.4	1483.7	12.6	123.5
	Total	19.9	113.3	2255.3	11.7	233.6

25-6 STRUCTURAL FASTENER DATA

Refer to Bell Standard Practices Manual BHT-ALL-SPM for torque values not listed in this ICA.

FORM AE-100

DEPARTMENT OF TRANSPORT STATEMENT OF COMPLIANCE OF AIRCRAFT OR AIRCRAFT COMPONENTS WITH THE AIRWORTHINESS REQUIREMENTS					AE-100 No.: Initial Issue Date: Revision:	AE698 25 Ma	3-1 y, 2006
Aircraft Mfgr: Bell Aircraft Model: 206L Series, 407 Registration: All Eligible			Appliance		Revision Date: Approval No.: Delegation No.: Delegate Name: sification of Designee: Employer:	SH00-48 290M E. Burgoin AERO Design Ltd.	
		LI	ST OF APPROVED REI	PORTS AND	D DATA		Compliance
Document N	lumber			ument Title			Status
DCL698-1 ER698.01 69810 69811 69812 69821 69823 69824 69825 69826 69827 49210 49212 49213 49215 49216 36255 36261 36262 36271 36272 36273 36274 36275 36276 36277 36278	Revision 0 Revision 1 Revision 0 Revision 1 Revision 0 Revision 0 Revision 0 Revision 0 Revision 1	Engineeri Cargo Ba Basket Basket Co Basket Bi Lid Brack Bushing Spring Ho Handle B Spring Brace	ar Assembly racket Assembly ever racket et				
36280, Sht. 1/2	Revision 2	Brace	DATA APPROVED	BY TRANSI	PORT CANADA		
UNDER THE AUTHORITY VESTED IN ME BY THE DEPARTMENT OF TRANSPORT, I HEREBY CERTIFY THAT THE DATA LISTED ABOVE AND ON THE ATTACHED SHEETS NUMBERED NiI HAVE BEEN EXAMINED IN ACCORDANCE WITH ESTABLISHED PROCEDURES AND FOUND TO COMPLY, TO THE BEST OF MY KNOWLEDGE AND BELIEF WITH THE PERTINENT COMPLIANCE REQUIRMENTS. I THEREFORE [] RECOMMEND FOR APPROVAL OF THESE DATA [] APPROVE THESE DATA							

DOCUMENT CONTROL LIST

DOCUMENT NO.	DOCU	MENT CONTENT	REVISION
FABRICATION DOCUMENTS			
69810 69811 69812 69821 69823 69824 69825 69826	Cargo Basket Asser Basket Body Assem Basket Lid Assembl Basket Components Basket Components Basket Components Basket Components Basket Components	bly y - End Hoop - Lugs - Rim - Spine - Strut	0 0 0 0 0 0 0
49210 49212 49213 49215 49216	Basket Components Basket Components Basket Components Basket Components Basket Components	1 0 1 0	
36255 36261 36262 36271 36272 36273 36274 36275 36276 36277 36278 36280, Sheet 1 36280, Sheet 2	Handle Assembly Handle Bar Assemb Handle Bracket Ass Handle Lever Basket Bracket Lid Bracket Bushing Bushing Spring Hook Handle Bar Spring Brace Brace		1 1 1 0 0 0 0 1 0 0 1 2 2
ENGINEERING DOCUMENTS ER698.01	Engineering Report		0
APPROVAL:	ORIGINAL DATE: 3 May, 2006 REVISION DATE:	AERO DESIGI 2013 – 39 th Ave NE, Calgary, Al Ph. (403) 250-802 Fax. (403) 250-833	berta, T2E 6R7
	SHEET 1 OF 1	Cargo nbly	
	DC	L698-1	Rev.

FORM AE-100

DEPART STATEMENT OF COMPL COMPONENTS WITH TH		RAFT OR AIRCRAFT	AE-100 No.: Initial Issue Date: Revision:	AE698-2 25 May, 2006	
Aircraft Mfgr: Bell Aircraft Model: 206L Se Registration: All Eligib	eries, 407 ole	Model Type Airplane Helicopter Appliance Component	Revision Date: Approval No.: Delegation No.: Delegate Name: Classification of Designee:	SH00-48 290M E. Burgoin	
			Employer:	AERO Design Ltd.	
	LI	ST OF APPROVED REPOR	RTS AND DATA	Compliance	
Document Number		Docum	ent Title	Compliance Status	
DCL698-2 Revisi ER698.02 Revisi TP698.03 Revisi 69830 Revisi 69831 Revisi	on 0 Engineer on 0 Test Plar on 0 Forward	Document Control List and all documents referred to therein Engineering Report Test Plan Forward Beam Fabrication Aft Beam Fabrication			
		DATA APPROVED BY	TRANSPORT CANADA		
		CERTIFICATIO	ON		
UNDER THE AUTHORITY VESTED IN ME BY THE DEPARTMENT OF TRANSPORT, I HEREBY CERTIFY THAT THE DATA LISTED ABOVE AND ON THE ATTACHED SHEETS NUMBERED NII HAVE BEEN EXAMINED IN ACCORDANCE WITH ESTABLISHED PROCEDURES AND FOUND TO COMPLY, TO THE BEST OF MY KNOWLEDGE AND BELIEF WITH THE PERTINENT COMPLIANCE REQUIRMENTS.					
I THEREFORE [□]	RECOMMEN	ID FOR APPROVAL OF TH	IESE DATA		
[⊠] APPROVE THESE DATA F. Burgoin, DAR 290M					

DOCUMENT NO.	DOCU	MENT CONTENT	REVISION
FABRICATION DOCUMENTS			×
69831 69831	Forward Beam Fabrication		0
ENGINEERING DOCUMENTS ER698.02 TP698.03	Engineering Report Test Plan		0
APPROVAL:	ORIGINAL DATE: 3 May, 2006 REVISION DATE:	AERO DESIGN 2013 – 39 th Ave NE, Calgary, Al Ph. (403) 250-802 Fax. (403) 250-833	berta, T2E 6R7 7
	SHEET 1 OF 1	Quick Release Mount	ing Beams
	DC	L698-2	O





DRAFT GIVEN TO JACK

Department of Transport

Supplemental Type Certificate

This approval issued to:

AERO Design Ltd. 2013 - 39th Avenue NE Calgary, Alberta T2E 6R7

Approval Number: SH00-48

Issue Number.:

Date of Approval: 8 December, 2000

Date of Issue: May, 2006

Responsible Office: Prairie and Northern

Aircraft / Engine Type:

Bell

Model:

206L, L-1, L-3, L-4

Registration: All Eligible Serial No.:

All Eligible

Canadian Type Certificate or Equivalent: H-92

Description of Design Change:

Installation Of Cargo Basket / External Attachment Provisions

Installation Of Auxiliary Step

Required Equipment and Limitations:

Bell 407 Only:

Configuration A - External Attachment Provisions Only:

Installation of the External Attachment Provisions is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL700, Rev. 0, dated 10 May 2006, or later approved revision.

Transport Canada approved, AERO Design Ltd., Instructions for Continued Airworthiness ICA700.90, Revision 0, dated 3 May 2006 is required with this installation.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS700.91, Revision 0, dated 4 May 2006 is required with this installation.

External Attachment Provisions installed in accordance with DCL700 may remain installed if the basket installation is removed.

(see continuation sheet...)

Conditions: This approval is only applicable to the type/model of aeronautical product specified therein. Prior to incorporating this modification, the installer shall establish that the interrelationship between this change and any other modification(s) incorporated will not adversely affect the airworthiness of the modified product.

For the Minister of Transport

Continuation Sheet

Approval Number:

SH00-48

Issue Number: 5

Date of Approval: 8 December, 2000

Date of Issue: May, 2006

Approval Data (Continued):

NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

Bell 407 Only (Continued):

Configuration B - External Cargo Basket Installation (Low Mounted):

Installation of Configuration A, External Attachment Provisions, is a prerequisite for installation of Configuration B, External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada Approved, AERO Design Ltd., Document Control List DCL606, Revision 2, dated 10 May 2006, or later approved revision. High skid gear is required for the basket installation. Placard is required on the basket lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS 606.01, Revision 1, dated 01 February, 2005 is required with this installation.

Transport Canada approved, AERO Design Ltd., Instructions for Continued Airworthiness ICA492.90, Revision 0, dated 4 May 2006 is required with this installation.

Basis of Certification is as defined by the applicable Type Certificate Data Sheets.

Configuration C - External Cargo Basket Installation (High Mounted):

Installation of Configuration A, External Attachment Provisions, is a prerequisite for installation of Configuration C, External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada Approved, AERO Design Ltd., Document Control List DCL606-1, Revision 0, dated 1 February 2005, or later approved revision. Approved emergency exit "push-out" windows or an approved sliding door are required on the side of the helicopter that the basket is installed on if passengers are to be carried. Placard is required on the basket lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS 606.01, Revision 1, dated 01 February 2005 is required with this installation.

Transport Canada approved, AERO Design Ltd., Maintenance Instructions MI 606.01, Revision 2, dated 19 July 2004 is required with this installation.

Basis of Certification is as defined by the applicable Type Certificate Data Sheets.

Configuration D – External Cargo Basket Installation (Low Mounted Quick Release):

Installation of Configuration A, External Attachment Provisions, is a prerequisite for installation of Configuration D, External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada Approved, AERO Design Ltd., Document Control List DCL701, Revision 0, dated 10 May 2006, or later approved revision. High skid gear is required for the basket installation. Placard is required on the basket lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS 701.90, Revision 0, dated 5 May, 2006 is required with this installation.

Transport Canada approved, AERO Design Ltd., Instructions for Continued Airworthiness ICA698.90, Revision 0, dated 20 April 2006 is required with this installation.

Basis of Certification is as defined by the applicable Type Certificate Data Sheets.

Continuation Sheet

Approval Number: SH00-48

Issue Number: 5

Date of Approval: 8 December, 2000

Date of Issue: May, 2006

Approval Data (Continued):

NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

Bell 206L, L-1, L-3, L-4 Only:

Configuration A - External Attachment Provisions Only:

Installation of the External Attachment Provisions is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL493, Rev. 6, dated 10 May 2006, or later approved revision.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS 493.01, Revision 0, dated 19 May 2002 is required with this installation.

Transport Canada approved, AERO Design Ltd., Instructions for Continued Airworthiness ICA493.90, Revision 0, dated 4 May 2006 is required with this installation.

External Attachment Provisions installed in accordance with DCL493 may remain installed if the basket installation is removed.

Configuration B - External Cargo Basket Installation (Low Mounted):

Installation of Configuration A, External Attachment Provisions, is a prerequisite for installation of Configuration B, External Cargo Basket Installation. Installation of the cargo basket is to be completed in accordance with Transport Canada Approved, AERO Design Ltd., Document Control List DCL492, Revision 5, dated 10 May 2006, or later approved revision. High skid gear is required for the basket installation. Placard is required on the basket lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS 492.01, Revision 1, dated 25 June 2002 is required with this installation.

Transport Canada approved, AERO Design Ltd., Instructions for Continued Airworthiness ICA492.90, Revision 0, dated 4 May 2006 is required with this installation.

Basis of Certification is as defined by the applicable Type Certificate Data Sheets, plus FAR 27 at amendment 27-24.

Configuration C - External Cargo Basket Installation (Low Mounted Quick Release):

Installation of Configuration A, External Attachment Provisions, is a prerequisite for installation of Configuration C, External Cargo Basket Installation. Installation of the External Cargo Basket is to be completed in accordance with Transport Canada Approved, AERO Design Ltd., Document Control List DCL702, Revision 0, dated 10 May 2006, or later approved revision. High skid gear is required for the basket installation. Placard is required on the basket lid.

Transport Canada approved, AERO Design Ltd., Flight Manual Supplement FMS 702.90, Revision 0, dated 5 May, 2006 is required with this installation.

Transport Canada approved, AERO Design Ltd., Instructions for Continued Airworthiness ICA698.90, Revision 0, dated 20 April 2006 is required with this installation.

Basis of Certification is as defined by the applicable Type Certificate Data Sheets.

Continuation Sheet

Approval Number:

SH00-48

Issue Number: 5

Date of Approval: 8 December, 2000

Date of Issue: May, 2006

Approval Data (Continued):

NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

All Models (Bell 206L Series and 407):

Auxiliary Step Installation:

Installation of the Auxiliary Step is to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL623, Rev. 0, dated 13 January 2005, or later approved revision.

The Auxiliary Step is optional and is not required with cargo basket installations listed above.

Auxiliary Step installed in accordance with DCL623 may remain installed if the basket installation is removed.

Basis of Certification is as defined by the applicable Type Certificate Data Sheets.

Cargo Basket Modifications:

Modifications to the above listed cargo basket configurations to be completed in accordance with Transport Canada approved, AERO Design Ltd., Document Control List DCL704, Rev. 0, dated 10 May 2006, or later approved revision. Eligibility limitations are noted on the drawings.

AERO DESIGN LTD. 2013 – 39 Avenue N.E., Calgary, Alberta, T2E 6R7 Tel: 403-250-8027 Fax: 403-250-8333 aerodesign@telusplanet.net

Your File #: SH00-48

Our File #: Various

25 May, 2006

Transport Canada Aircraft Certification Division 11th Floor, Canada Place 9700 Jasper Avenue Edmonton, Alberta T5J 4E6

Attn: Jack Staal

Cargo Basket Approval Revisions

Jack,

Re:

Here is a description of the changes included in the package given to you today. DCL493

1. Both the front and rear fittings have been modified because we are using CNC machining to fabricate the complete part. The "pockets" on the ends are entarged because of the ease of including them using CNC (much longer to do on a manual milling machine). The net cross-sectional area of the fitting is unchanged because the width and depth remain the same as the original configuration. This is also similar to the original fittings from Bell.

- 2. The rear fitting has been changed to add ¼" to the forward face. This is to allow the attachments to be in the same position on the Bell 206L and 407.
- 3. ICA493.90 replaces MI 493.01.

DCL492-1

- 1. Fabrication of the basket has been moved to DCL492-1, so only 1 document needs to be called up for both the 206L and 407 configurations.
- 2. New beams are included, made of HSS steel to be used as an alternative to the existing aluminum beams. Engineering Report ER492.03 provides the substantiation of the beams, as well as the test you witnessed this morning (bending moment at the helicopter attachment is the same).

DCL492 and DCL606

- 1. The installation drawing has been changed to remove the spacers and shorten the bolts for installing the basket. This is due to increasing the length of the rear fitting noted above. Also the new beams are referenced as an alternative on the drawing.
- 2. DCL492-1 is now referenced for fabrication documents.
- 3. ICA 492.90 is now referenced on the installation documents. Maintenance Instructions have been removed.

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AERO DESIGN LTD.

2013 - 39 Avenue N.E., Calgary, Alberta, T2E 6R7

Tel: 403-250-8027 Fax: 403-250-8333 aerodesign@telusplanet.net

DCL700 (New)

1. The installation drawing for Bell 407 external attachment provisions is 60602. It was referenced on both DCL606 and DCL606-1. To allow for possible installation of equipment on the external attachment provisions separate from the cargo basket, the installation is moved to a separate DCL, with FMS and ICA. This is the same as for the Bell 206L, on DCL493.

DCL698-1 (New)

1. Fabrication of the quick release cargo basket.

DCL698-2 (New)

1. Fabrication of the beams for the quick release cargo basket.

DCL701 and DCL702 (New)

1. Installation of quick release basket, including FMS and ICA698.90

DCL704 (New)

1. Modifications to the basic baskets, with limitations noted on the drawing.

Regards,

Jeff Clarke, Technologist

Encl.

AERO Design Ltd.

ENGINEERING REPORT ER698.01

QUICK RELEASE CARGO BASKET

Approved: E. Burgoin, P. Eng.

Revision 0 Date: 5 April, 2006

<u>AERO Design Ltd.</u> Engineering Consultants 2013 – 39th Avenue N.E., Calgary, Alberta T2E 6R7 Phone: (403) 250-8027

Fax: (403) 250-8333

E-Mail: aerodesign@telusplanet.net

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TABLE OF CONTENTS

1.0	INTRODUCTION	3
2.0	REFERENCE	3
3.0	BASIS OF CERTIFICATION	3
4.0	ANALYSIS OF CURRENT AIRWORTHINESS DIRECTIVES (AD'S)	3
5.0	LOADS	4
5.1	Inertia Loads	5
5.2	Drag Load	6
6.0	STRUCTURAL COMPLIANCE	7
6.1	Basket	7
6.2	Beams	7
63	Attachment Provisions	7

AERO Design Ltd. ER 698.01

1.0 INTRODUCTION

There have been numerous requests from operators to allow the use of quick-release pins (pip-pins) on the Aero Design cargo basket. The attachments from the beam to the basket are not correct for the intended use of pip-pins, which require double shear and no bending to prevent the pin from coming out.

As an alternative to allowing the use of pip-pins, the mounting beams and basket attachments have been re-designed. The new configuration consists of a hook attachment at the top of the basket and a keyway near the bottom. The keyway is blocked by a spring loaded pin that must be pushed in to install or remove the basket. Since there are no tools required, the basket can be installed or removed by a pilot.

Basket construction remains the same as the original low mounted basket, but the length is increased by about 2" so the front and rear hoops are now aligned with the beams.

2.0 REFERENCE

AERO Design Ltd. drawing 69810 MIL-HDBK-5

3.0 BASIS OF CERTIFICATION

Bell 407, TCDS H-92 (Highest of Bell 206L series and 407):

FAR part 27, dated October 2, 1964 Amendment 27-1 through 27-30; Paragraph 27.561(b)(3) at Amdt 27-24; Section 27.563 at Amdt. 27-25; Section 27.785 at Amdt 27-24; Section 27.1093 at amendment 27-8; and Section 27.173 and 27.175 at amendment 27-1.

Exemptions to FAR 27 are the deletion of sections: 27.562, 27.1195, and 27.952(b)(1).

This installation:

Same as the basis of certification as shown the Type Certificate Data Sheet.

4.0 ANALYSIS OF CURRENT AIRWORTHINESS DIRECTIVES (AD'S)

AD CF-2004-03 relates to high stresses imposed on the landing gear cross tubes during run on landings, and introduces an RIN (Retirement Index Number) on the landing gear cross tubes. This installation does not affect compliance with AD CF-2004-03.

Two AD's requiring a lower V_{NE} have been issued (CF-1998-36, CF-2001-01). CF-2001-01 has been rescinded. CF-1998-36 is still in effect. This installation does not affect compliance with AD CF-1998-36, as the flight manual supplement states that if the V_{NE} of the existing flight manual is more restrictive to use the lower value.

Revision 0 5 April, 2006 Page 3

ER 698.01 AERO Design Ltd.

5.0 LOADS

BELL 407 HELICOPTER LOAD FACTORS, FAR 27:

FAR 27.561(b)(3)

Ultimate Upward Emergency Landing Load Factor:

 $n_{eup} := 1.5$

Ultimate Forward Emergency Landing Load Factor:

 $n_{e \text{ fwd}} := 4.0$

Ultimate Sideward Emergency Landing Load Factor:

 $n_{e \text{ side}} := 2.0$

Ultimate Downward Emergency Landing Load Factor: $n_{e\ down} := 4.0$

FAR 27.625

Fitting Factor (does not apply to articles being tested): n ff:=1.15

FAR 27.303

Safety Factor:

 $n_{sf} := 1.5$

FAR 27.337(a)

Limit Positive Maneuvering LoadFactor:

 $n_{man} := 3.5$

 $n \text{ man ult} := n \text{ man} \cdot n \text{ sf}$

Ultimate Positive Maneuvering LoadFactor:

 $n_{man ult} = 5.25$

Limit Negative Maneuvering LoadFactor:

 $n_{man n} := -1.0$

 $n_{\ man_neg_u} := n_{\ man_n} \cdot n_{\ sf} \ \ \text{Ultimate Negative Maneuvering LoadFactor:}$

 $n_{\text{man neg u}} = -1.5$

CRITICAL ULTIMATE LOAD FACTORS:

Downward: Ultimate Positive Maneuvering LoadFactor:

 $n_{man ult} = 5.25$

Forward:

Ultimate Forward Emergency Landing Load Factor:

 $n_{e \text{ fwd}} = 4.00$

Sideward:

Ultimate Sideward Emergency Landing Load Factor:

 $n_{e \text{ side}} = 2.00$

Upward:

Ultimate Upward Emergency Landing Load Factor:

 $n_{e up} = 1.50$

The basket is mounted below and to one side of the cabin. Forward deflection or failure in the emergency landing condition does not endanger the occupants. Likewise, Sideward and Upward deflection or failure of the basket in the emergency landing condition do not endanger the occupants.

Sideward and Upward Load Factors are used in the tests to ensure that the lid of the basket does not open in flight.

AERO Design Ltd. ER 698.01

5.1 Inertia Loads

$$W_{basket} := 55.1bf$$

Weight of basket

Weight of cargo (max)

Weight of beam (each)

Total weight of basket installation (with cargo)

The aft beam is critical as the spacing on the helicopter attachments are closer on the aft beam than on the forward beam.

Assuming 1/2 cargo is at the aft end:

$$P_{end} := \frac{W_{basket}}{2} + \frac{W_{cargo}}{2} + W_{beam}$$

$$P_{end} = 138.1bf$$

Total weight on aft end of basket

Ultimate load due to basket installation on aft beam (1/2 cargo)

Assuming 2/3 cargo is at the aft end:

$$P_{end} := \frac{W_{basket}}{2} + W_{cargo} \cdot \frac{2}{3} + W_{beam}$$

Total weight on aft end of basket

$$P_{ult} = 897 \cdot 1bf$$

Ultimate load due to basket installation on aft beam

5.2 Drag Load

$$1_{basket} := 75.75 \cdot in$$

Length of basket.

Width of basket.

Height of basket.

$$A_{\rm ef} = 352 \cdot {\rm in}^2$$

Frontal Area of basket.

$$A_{p} = 1666 \cdot in^{2}$$

Planar Area of basket.

$$\frac{1 \, \text{basket}}{\text{w basket}} = 3.4$$

Fineness ratio of basket

Drag Coefficient of Basket, (overestimated) (Ref. Hoemer, Fluid Dynamic Drag, Figure 22).

$$\rho := 0.002378 \cdot \frac{\text{slug}}{\text{ft}^3}$$

Density of air at Sea Level.

$$V_{ne} := 140 \cdot knots$$

Never-Exceed-Speed of Bell 407. (Ref. Bell 407 Flight Manual.)

$$V_d := \frac{V_{ne}}{0.9}$$

Design Dive Speed of Bell 407

Drag :=
$$\frac{\rho}{2}$$
: $\forall d^2 \cdot A f^C$ Do

Drag on basket.

$$p_{drag_ult} := Drag \cdot n_{sf} \cdot n_{ff}$$

$$p_{drag_ult} = 553 \cdot 1bf$$

Ultimate applied Drag load on basket.

$$\texttt{p}_{\texttt{drag_test}} \coloneqq \texttt{Drag} \cdot \texttt{n}_{\texttt{sf}}$$

Ultimate Drag load on basket in Static Test.

AC
$$_{drag} := 38.5 \cdot in$$

Lateral Aerodynamic Center of basket.

$$p_{drag_test_beam} := \frac{Drag \cdot n_{sf}}{2}$$

$$p_{drag_test_beam} = 240 \cdot 1bf$$

Ultimate Drag load on beam in Static Test.

AERO Design Ltd. ER 698.01

6.0 STRUCTURAL COMPLIANCE

6.1 Basket

The basket is only slightly longer than the previously approved basket. The original basket was load tested. Refer to ER492.02 for load test. The drag load from this installation is higher as the design dive speed of the Bell 407 is higher than the Bell 206L. The required drag load to be tested is 481 lb. The basket was tested to 530 lb.

A compression strut is added to the front and rear hoops of the basket. This is to distribute the load applied toward the outboard side of the basket back to the beam attachment.

The strength of the basket attachments to the beams and the compression strut is demonstrated in section 6.2.

The basket has been considered and acceptable for this installation.

6.2 Beams

Strength of the beams and the attachment of the basket to the beams is demonstrated by test. Refer to ER698.02 for testing.

The beams were demonstrated to be acceptable for this installation.

6.3 Attachment Provisions

The attachment provisions are the same as analyzed in ER606.01 and tested ER606.02. There is no change to that configuration. Additionally, the same attachment configuration as tested in ER606.02 was tested in ER698.02.

The attachments are acceptable.

AERO Design Ltd.

STRUCTURAL TEST PLAN TP698.03

QUICK RELEASE CARGO BASKET BEAMS

Revision 0 Date: 18 May, 2006

<u>AERO Design Ltd.</u> Engineering Consultants 2013 – 39th Avenue N.E., Calgary, Alberta T2E 6R7 Phone: (403) 250-8027

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TABLE OF CONTENTS

1.0	INTRODUCTION	3
2.0	REFERENCE	3
3.0	BASIS OF CERTIFICATION	3
4.0	ANALYSIS OF CURRENT AIRWORTHINESS DIRECTIVES (AD'S)	4
5.0	LOADS	5
5.1	Inertia Loads	6
5.2	Drag Load	7
6.0	STRUCTURAL COMPLIANCE	8
6.1	Beams	8
6.1.1	Test Setup	8
6.1.2	Test – Steel Beam	9
613	Test - Stainless Steel Ream	12

AERO Design Ltd.

1.0 INTRODUCTION

Aero Design Ltd. is the holder of STC SH0048 which provides for the installation of a cargo basket on the right hand side of Bell 206 L series and Bell 407 helicopter between the landing gear cross-tubes and below the passenger cabin door. The basket is supported by aluminum beams bolted to the front and aft end of the baskets that are attached to modified landing gear attachment fittings.

It has become a desirable feature to be able to quickly remove the basket from the helicopter for both ground handling and flight operations that does not require the used of tools.

A new design for attaching the cargo basket to the support beams has been implemented that allows for quick installment and detachment without the use of tools. The aluminum beam construction has also been altered and new beams built from 2" x 1" rectangular tubing have been used.

The landing gear attachment fittings to which the basket support beams are secured are approved in STC SH0048 and remain unaltered physically, allowable loads or the loads which are applied to them by this installation.

The cargo basket assembly is approved in STC SH0048 and remains unchanged except for its attachment to the support beams.

The purpose of this test is to demonstrate compliance with the structural requirements FAR 27.303, 27.305 and 27.307) to support drag loads at Vd (FAR 27.301(b)) and the maneuvering load conditions (FAR 27.337) with the new support beams installed.

2.0 REFERENCE

AERO Design Ltd. drawing 69830 - forward support beam

AERO Design Ltd. drawing 69831 – aft support beam

3.0 BASIS OF CERTIFICATION

Bell 407, TCDS H-92 (Highest of Bell 206L series and 407):

FAR part 27, dated October 2, 1964 Amendment 27-1 through 27-30; Paragraph 27.561(b)(3) at Amdt 27-24; Section 27.563 at Amdt 27-25; Section 27.785 at Amdt 27-24; Section 27.1093 at amendment 27-8; and Section 27.173 and 27.175 at amendment 27-1.

Exemptions to FAR 27 are the deletion of sections: 27.562, 27.1195, and 27.952(b)(1).

This installation:

Same as the basis of certification as shown the Type Certificate Data Sheet.

AERO Design Ltd.

4.0 ANALYSIS OF CURRENT AIRWORTHINESS DIRECTIVES (AD'S)

AD CF-2004-03 relates to high stresses imposed on the landing gear cross tubes during run on landings, and introduces an RIN (Retirement Index Number) on the landing gear cross tubes. This installation does not affect compliance with AD CF-2004-03.

Two AD's requiring a lower V_{NE} have been issued (CF-1998-36, CF-2001-01). CF-2001-01 has been rescinded. CF-1998-36 is still in effect. This installation does not affect compliance with AD CF-1998-36, as the flight manual supplement states that if the V_{NE} of the existing flight manual is more restrictive to use the lower value.

TP 698.03 AERO Design Ltd.

5.0 LOADS

BELL 407 HELICOPTER LOAD FACTORS, FAR 27:

FAR 27.561(b)(3)

Ultimate Upward Emergency Landing Load Factor:

 $n_{e up} := 1.5$

Ultimate Forward Emergency Landing Load Factor:

 $n_{e \text{ fwd}} := 4.0$

Ultimate Sideward Emergency Landing Load Factor:

 $n_{e \text{ side}} := 2.0$

Ultimate Downward Emergency Landing Load Factor: $n_{e\ down} := 4.0$

FAR 27.625

Fitting Factor (does not apply to articles being tested): $n_{\text{ff}} = 1.15$

FAR 27.303

Safety Factor:

 $n_{sf} := 1.5$

FAR 27.337(a)

Limit Positive Maneuvering LoadFactor:

 $n_{man} := 3.5$

 $n \text{ man ult} = n \text{ man} \cdot n \text{ sf}$

Ultimate Positive Maneuvering LoadFactor:

 $n_{man ult} = 5.25$

Limit Negative Maneuvering LoadFactor:

 $n_{man_n} := -1.0$

 $n_{man\ neg\ u} := n_{man\ n} \cdot n_{sf}$ Ultimate Negative Maneuvering LoadFactor:

 $n_{\text{man neg u}} = -1.5$

CRITICAL ULTIMATE LOAD FACTORS:

Downward: Ultimate Positive Maneuvering LoadFactor:

 $n_{man ult} = 5.25$

Forward:

Ultimate Forward Emergency Landing Load Factor:

 $n_{e \text{ fwd}} = 4.00$

Sideward:

Ultimate Sideward Emergency Landing Load Factor:

 $n_{e \text{ side}} = 2.00$

Upward:

Ultimate Upward Emergency Landing Load Factor:

 $n_{e up} = 1.50$

The basket is mounted below and to one side of the cabin. Forward deflection or failure in the emergency landing condition does not endanger the occupants. Likewise, Sideward and Upward deflection or failure of the basket in the emergency landing condition do not endanger the occupants.

Sideward and Upward Load Factors are used in the tests to ensure that the lid of the basket does not open in flight.

5.1 Inertia Loads

Weight of basket

Weight of cargo (max)

Weight of beam (each)

Total weight of basket installation (with cargo)

The aft beam is critical as the spacing on the helicopter attachments are closer on the aft beam than on the forward beam.

Assuming 1/2 cargo is at the aft end:

$$P_{end} := \frac{W_{basket}}{2} + \frac{W_{cargo}}{2} + W_{beam}$$

$$P_{end} = 138 \cdot 1bf$$

Total weight on aft end of basket

$$P_{ult} = 722 \cdot 1bf$$

Ultimate load due to basket installation on aft beam

(1/2 cargo)

Assuming 2/3 cargo is at the aft end:

$$P_{end} := \frac{W_{basket}}{2} + W_{cargo} \cdot \frac{2}{3} + W_{beam}$$

Total weight on aft end of basket

$$P_{ult} = 897 \cdot 1bf$$

Ultimate load due to basket installation on aft beam

(2/3 cargo)

5.2 Drag Load

Length of basket.

Width of basket.

Height of basket.

$$A_f = 352 \cdot in^2$$

Frontal Area of basket.

$$A_{p} = 1666 \cdot in^{2}$$

Planar Area of basket.

$$\frac{1 \, \text{basket}}{\text{w basket}} = 3.4$$

Fineness ratio of basket

Drag Coefficient of Basket, (overestimated) (Ref. Hoemer, Fluid Dynamic Drag, Figure 22).

$$\rho := 0.002378 \cdot \frac{\text{slug}}{\text{ft}^3}$$

Density of air at Sea Level.

Never-Exceed-Speed of Bell 407. (Ref. Bell 407 Flight Manual.)

$$V_d := \frac{V_{ne}}{0.9}$$

Design Dive Speed of Bell 407

$$\mathsf{Drag} := \frac{\rho}{2} \cdot \mathsf{V} \underset{d}{\overset{2}{\cdot}} \mathsf{A}_{\mathbf{f}} \mathsf{C}_{\mathsf{Do}}$$

Drag on basket.

$$p_{drag_ult} = 553 \cdot 1bf$$

Ultimate applied Drag load on basket.

$$p_{\tt drag_test} := Drag \cdot n_{\tt sf}$$

Ultimate Drag load on basket in Static Test.

AC
$$_{drag} := 38.5 \cdot in$$

Lateral Aerodynamic Center of basket.

$$p_{\texttt{drag_test_beam}} \coloneqq \frac{\mathsf{Drag} \cdot \mathbf{n}_{\texttt{sf}}}{2}$$

Ultimate Drag load on beam in Static Test.

6.0 STRUCTURAL COMPLIANCE

6.1 Beams

Strength of the beams and the attachment of equipment to the beams is demonstrated by test. The aft beam is critical since the positioning of the left and right landing gear attachment fittings are closer together for the aft I/g cross-tube than the forward I/g cross-tube.

6.1.1 Test Setup

A landing gear attachment block was fabricated in accordance with drawing 60620. A scrap Bell 407 aft landing gear fitting is used for the test with the block installed as shown on drawing 60602. The landing gear fitting is then attached to a heavy steel channel to support the beam, as it would be installed on the helicopter. The fitting closest to the basket is critical.

The assembly is installed on a large I beam, with the aft beam extending off the end. The channel section with the landing gear fitting is welded near the end of the I beam. A channel was welded to the I beam to secure the other support beam attachment with a 3/8 bolt.

A representative section of the aft end of the basket has been fabricated, including the compression strut and basket attachments. This section is then installed on the aft beam.

The drag load is applied with a ring fitting installed on a piece of seat track clamped to the inboard edge of the basket section, and pulled with a come-along. The maneuvering load is applied by stacking bags of lead shot on the basket section, with the centre of gravity at the lateral centre of gravity of the basket.

The test setup is shown in the following pictures

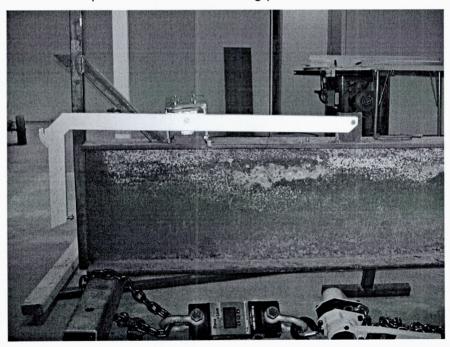


Figure 1 Aft Support Beam Mounted on Testing Fixture

Revision 0 18 May, 2006 Page 8

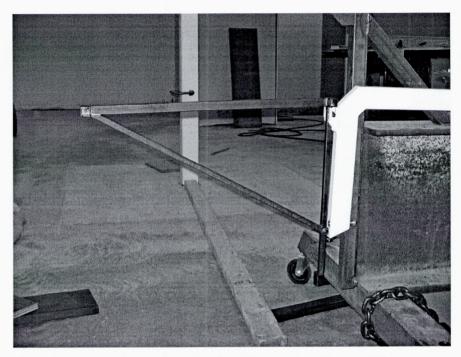


Figure 2 Representative Basket Section Mounted on Support Beam

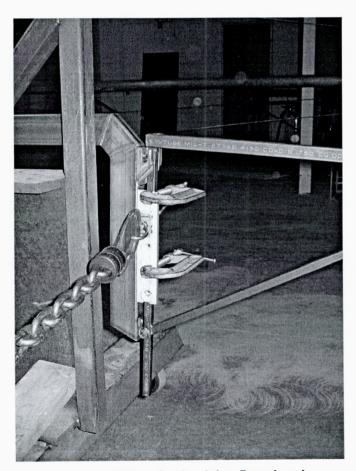


Figure 3 Attachment Ring for Applying Drag Load

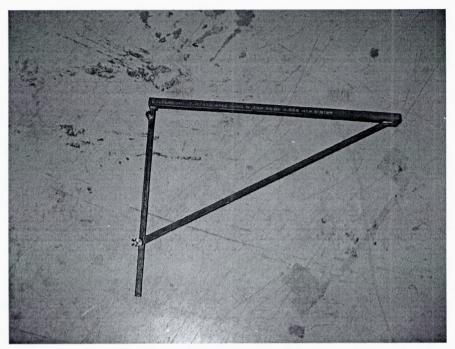


Figure 4 Frame to simulate end of Cargo Basket onto which Maneuvering Load to be Applied.

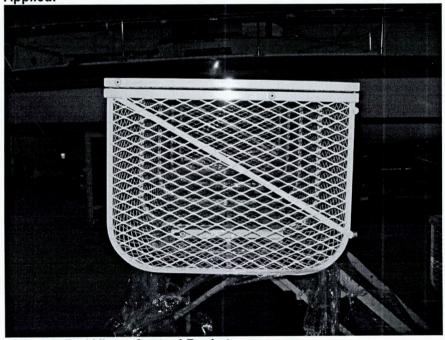


Figure 5 End View of actual Basket

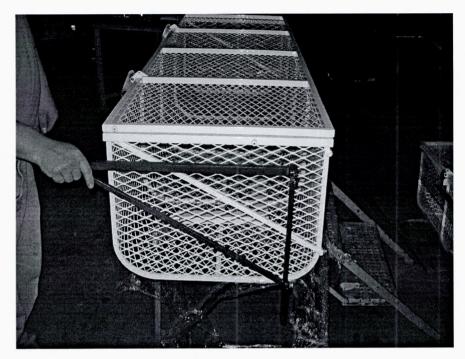


Figure 6

Test - Steel Beam

Limit drag and maneuvering condition loads are applied simultaneously.

The loads are to be removed and the structure to be inspected for signs of permanent deformation.

Ultimate drag and maneuvering condition loads are then applied simultaneously.

Ultimate loads are to be applied for a minimum of three seconds without structural failure.

6.1.2 Test - Stainless Steel Beam

Limit drag and maneuvering condition loads are applied simultaneously.

The loads are to be removed and the structure to be inspected for signs of permanent deformation.

Ultimate drag and maneuvering condition loads are then applied simultaneously.

Ultimate loads are to be applied for a minimum of three seconds without structural failure.

ENGINEERING REPORT ER698.02

QUICK RELEASE CARGO BASKET BEAMS

Approved: E. Burgoin, P. Eng.

Revision 0 Date: 5 April, 2006

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TABLE OF CONTENTS

1.0	INTRODUCTION	3
2.0	REFERENCE	3
3.0	BASIS OF CERTIFICATION	3
4.0	ANALYSIS OF CURRENT AIRWORTHINESS DIRECTIVES (AD'S)	3
5.0	LOADS	4
5.1	Inertia Loads	5
5.2	Drag Load	6
6.0	STRUCTURAL COMPLIANCE	7
6.1	Beams	7
6.1.1	Test Setup	7
6.1.2	Test – Steel Beam	7
613	Test – Stainless Steel Ream	9

1.0 INTRODUCTION

Substantiation of the beams has been separated from the basket assembly because the beams may be used for the installation of other equipment in the future. The design loads on the beams are assumed to be those of the basket and will be used to determine the limitations.

2.0 REFERENCE

AERO Design Ltd. drawing 69830, 69831 AERO Design Ltd. Test Plan TP698.03 MIL-HDBK-5

3.0 BASIS OF CERTIFICATION

Bell 407, TCDS H-92 (Highest of Bell 206L series and 407):

FAR part 27, dated October 2, 1964 Amendment 27-1 through 27-30; Paragraph 27.561(b)(3) at Amdt 27-24; Section 27.563 at Amdt. 27-25; Section 27.785 at Amdt 27-24; Section 27.1093 at amendment 27-8; and Section 27.173 and 27.175 at amendment 27-1.

Exemptions to FAR 27 are the deletion of sections: 27.562, 27.1195, and 27.952(b)(1).

This installation:

Same as the basis of certification as shown the Type Certificate Data Sheet.

4.0 ANALYSIS OF CURRENT AIRWORTHINESS DIRECTIVES (AD'S)

AD CF-2004-03 relates to high stresses imposed on the landing gear cross tubes during run on landings, and introduces an RIN (Retirement Index Number) on the landing gear cross tubes. This installation does not affect compliance with AD CF-2004-03.

Two AD's requiring a lower V_{NE} have been issued (CF-1998-36, CF-2001-01). CF-2001-01 has been rescinded. CF-1998-36 is still in effect. This installation does not affect compliance with AD CF-1998-36, as the flight manual supplement states that if the V_{NE} of the existing flight manual is more restrictive to use the lower value.

5.0 LOADS

BELL 407 HELICOPTER LOAD FACTORS, FAR 27:

FAR 27.561(b)(3)

Ultimate Upward Emergency Landing Load Factor:

 $n_{e up} := 1.5$

Ultimate Forward Emergency Landing Load Factor:

 $n_{e \text{ fwd}} := 4.0$

Ultimate Sideward Emergency Landing Load Factor:

 $n_{e \text{ side}} = 2.0$

Ultimate Downward Emergency Landing Load Factor: $n_{e \ down} := 4.0$

FAR 27.625

Fitting Factor (does not apply to articles being tested): $n_{\text{ff}} = 1.15$

FAR 27.303

Safety Factor:

 $n_{sf} := 1.5$

FAR 27.337(a)

Limit Positive Maneuvering LoadFactor:

 $n_{man} := 3.5$

 $n \text{ man ult} = n \text{ man} \cdot n \text{ sf}$

Ultimate Positive Maneuvering LoadFactor:

 $n_{man ult} = 5.25$

Limit Negative Maneuvering LoadFactor:

 $n_{man n} := -1.0$

 $n_{man neg u} \coloneqq n_{man n} \cdot n_{sf}$ Ultimate Negative Maneuvering LoadFactor:

 $n_{\text{man neg u}} = -1.5$

CRITICAL ULTIMATE LOAD FACTORS:

Downward:

Ultimate Positive Maneuvering LoadFactor:

 $n_{man ult} = 5.25$

Forward:

Ultimate Forward Emergency Landing Load Factor:

 $n_{e \text{ fwd}} = 4.00$

Sideward:

Ultimate Sideward Emergency Landing Load Factor:

 $n_{e \text{ side}} = 2.00$

Upward:

Ultimate Upward Emergency Landing Load Factor:

 $n_{e_up} = 1.50$

The basket is mounted below and to one side of the cabin. Forward deflection or failure in the emergency landing condition does not endanger the occupants. Likewise, Sideward and Upward deflection or failure of the basket in the emergency landing condition do not endanger the occupants.

Sideward and Upward Load Factors are used in the tests to ensure that the lid of the basket does not open in flight.

5.1 Inertia Loads

Weight of basket

Weight of cargo (max)

Weight of beam (each)

Total weight of basket installation (with cargo)

The aft beam is critical as the spacing on the helicopter attachments are closer on the aft beam than on the forward beam.

Assuming 1/2 cargo is at the aft end:

$$P_{end} := \frac{W_{basket}}{2} + \frac{W_{cargo}}{2} + W_{beam}$$

Total weight on aft end of basket

Ultimate load due to basket installation on aft beam (1/2 cargo)

Assuming 2/3 cargo is at the aft end:

$$P_{end} := \frac{W_{basket}}{2} + W_{cargo} \cdot \frac{2}{3} + W_{beam}$$

$$P_{end} = 171 \cdot 1bf$$

Total weight on aft end of basket

Ultimate load due to basket installation on aft beam

5.2 Drag Load

1_{basket} := 75.75·in

Length of basket.

w basket = 22 in

Width of basket.

h basket := 16 in

Height of basket.

A f := w basket h basket

 $A_f = 352 \cdot in^2$

Frontal Area of basket.

A p :=1 basket w basket

 $A_p = 1666 \cdot in^2$

Planar Area of basket.

 $\frac{1_{\text{basket}}}{2} = 3.4$

Fineness ratio of basket

C Do := 1.6

Drag Coefficient of Basket, (overestimated) (Ref. Hoerner, Fluid Dynamic Drag, Figure 22).

 $\rho := 0.002378 \cdot \frac{\text{slug}}{\text{ft}^3}$

Density of air at Sea Level.

V ne := 140-knots

Never-Exceed-Speed of Bell 407. (Ref. Bell 407 Flight Manual.)

 $V_d := \frac{V_{ne}}{0.9}$

 $V_d = 156 \cdot knots$

Design Dive Speed of Bell 407

 $\mathsf{Drag} := \frac{\rho}{2} \cdot \mathbb{V} \underset{\mathbf{d}}{\overset{2}{\cdot}} \mathbb{A}_{\mathbf{f}} \mathbb{C}_{\mathsf{Do}}$

Drag = 321 ·1bf

Drag on basket.

p drag ult := Drag·n sf n ff

p drag ult = 553 ·1bf

Ultimate applied Drag load on basket.

 $p_{drag_test} := Drag \cdot n_{sf}$

p drag_test = 481 ·1bf ·

Ultimate Drag load on basket in Static Test.

AC drag := 38.5 in

Lateral Aerodynamic Center of basket.

 $p_{\texttt{drag_test_beam}} \coloneqq \frac{\mathsf{Drag} \cdot \mathbf{n}_{\texttt{sf}}}{2}$

 $p_{drag_test_beam} = 240 \cdot 1bf$

Ultimate Drag load on beam in Static Test.

6.0 STRUCTURAL COMPLIANCE

6.1 Beams

Strength of the beams and the attachment of equipment to the beams is demonstrated by test. As stated previously, the aft beam is critical.

6.1.1 Test Setup

The test was prepared in accordance with Transport Canada accepted Test Plan TP698.03.

6.1.2 Test - Steel Beam

A steel aft beam was fabricated in accordance with drawing 69831. Material is $2 \times 1 \times 0.125$ wall steel, per CSA G40.21 50W. The beam was installed on the test jig and the frame section was installed on the beam.

The maneuvering and drag loads were applied simultaneously. The limit maneuvering load for 2/3 cargo at the aft end (171 lbs x 3.5 = 599 lbs) was applied by stacking bags of lead shot on the frame section. The down load was applied with 21 bags of lead shot (25 lbs each), a steel plate (50 lbs), and a channel (25 lbs), for a total of 600 lbs.

The limit drag (321 lbs / 2 = 160 lbs) was applied with a come-along attached to a load cell.

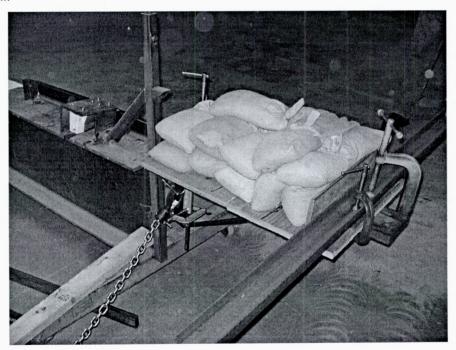


Figure 1 – Limit Load Test (600 lb. Down)

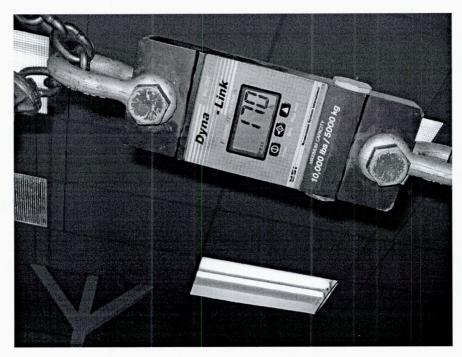


Figure 2 - Limit Drag Load

The load was removed and the beam checked for permanent deformation. There was no permanent deformation of the beam.

The 600 lbs was loaded back on the frame. The test continued by adding bags of lead shot to reach 925 lbs, ultimate load with 2/3 cargo at the aft end. The drag load was increased to ultimate of 240 lbs.



Figure 3 – Ultimate Load Test (925 lb. Down)

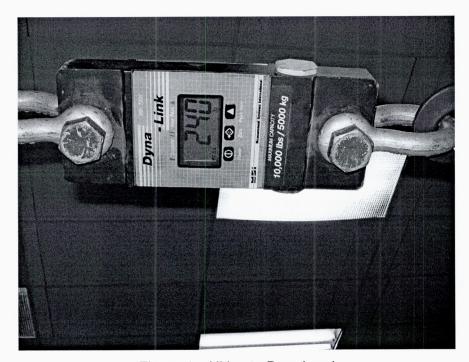


Figure 4 – Ultimate Drag Load

The channel section was used for stabilizing the stack only. The ultimate loads were applied for greater than 3 seconds. The beam did not fail. There was no permanent deformation of the basket attachments. The steel beams are sufficient for installation of the cargo basket.

6.1.3 Test – Stainless Steel Beam

A stainless steel aft beam was fabricated in accordance with drawing 69831. Material is 2 x 1 x 0.125 wall steel, per ASTM A554.

The maneuvering and drag loads were applied simultaneously. The limit maneuvering load for 2/3 cargo at the aft end (171 lbs x 3.5 = 599 lbs) was applied by stacking bags of lead shot on the frame section. The down load was applied with 21 bags of lead shot (25 lbs each), a steel plate (50 lbs), and a channel (25 lbs), for a total of 600 lbs.

The limit drag (321 lbs / 2 = 160 lbs) was applied with a come-along attached to a load cell.



Figure 5 – Limit Load Test (600 lbs down)

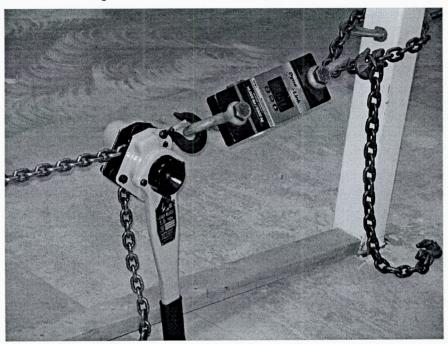


Figure 6 – Limit Drag Load (160 lbs)

The load was removed and the beam checked for permanent deformation. There was no permanent deformation of the beam.

The 600 lbs was loaded back on the frame. The test continued by adding bags of lead shot to reach 925 lbs, ultimate load with 2/3 cargo at the aft end. The drag load was increased to ultimate of 240 lbs.

Revision 0 5 April, 2006 Page 10

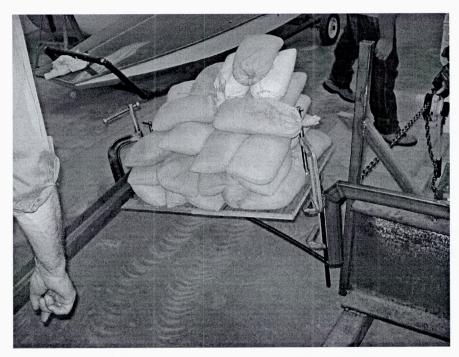


Figure 7 – Ultimate Load Test (925 lb. Down)

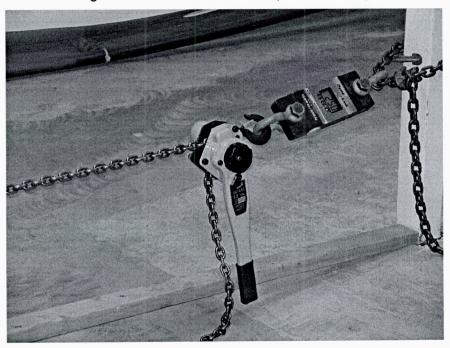


Figure 5 – Ultimate Drag Load (250 lbs)

The channel section was used for stabilizing the stack only. The ultimate loads were applied for greater than 3 seconds. The beam did not fail. There was no permanent deformation of the basket attachments. The stainless steel beams are sufficient for installation of the cargo basket.

AIRWORTHINESS REQUIREMENTS COMPLIANCE PROGRAM

Page 1 of 3 CP698

APPLICANT: AERO Design Ltd. 2013 39th Avenue NE

Calgary, Alberta, T2E 6R7

DATE: 27 April, 2006

REV. No. 0

MAKE: Bell Helicopter

MODEL: 206L Series, 407

REGISTRATION: All Applicable

SERIAL No.: All Applicable

(If other than applicant)

CORRESPONDANCE TO:

NATURE OF WORK: Installation of Side-Mounted External Cargo Basket

MODEL CERTIFICATION BASIS: FAR 27, Amendment 27-30, with exceptions as noted below. (Bell 407, highest of 206L Series and 407)

MODIFICATION CERTIFICATION BASIS: FAR 27, Amendment 27-30, with exceptions as noted below.

Airworthiness Requirement	S	Subject for Compliance or Documentary Proof	Form of Substantiation	DOT	DAR	Comments
Paragraph	Amdt	, , , , , , , , , , , , , , , , , , ,				
Subpart B – I	Flight					
27.27	30	Centre of Gravity Limits	N/A		~	No change from Type Approval.
27.29	30	Empty Weight and Corresponding C of G	Data specified on inst'n drawing		X	
27.51	30	Takeoff	Flight Test	Χ	1	
27.65	30	Climb: All Engines Operating	Flight Test	X	- 1	
27.71	30	Gliding Performance	Flight Test	Χ	1	
27.75	30	Landing	Flight Test	X	1	
27.141	30	Flight Characteristics – General	Flight Test	Χ	- 1	Flight tests performed using the same basket
27.143	30	Controllability and Maneuverability	Flight Test	Χ	1	on Bell 206L and similar basket on Bell 407 to
27.151	30	Flight controls	Flight Test	Χ		satisfy the flight test requirements. Limitations
27.161	30	Trim	Flight Test	X		established in previous flight tests to be used
27.171	30	Stability – General	Flight Test	Χ		with this installation.
27.173	1	Longitudinal Stability	Flight Test	X	- 1	With the metallation.
27.175	1	Demonstration of Longitudinal Stability	Flight Test	X	- 1	
27.177	30	Static Directional Stability	Flight Test	X	.	
27.241	30	Ground Resonance	Flight Test	X	- 1	
27.251	30	Vibration	Flight Test	Χ		
Subpart C –	Streng	th Requirements				
27.301	30	Loads – Air Drag Loads	Analysis		X	
27.301	30	Loads – Inertia Loads	Compliance with 27.337 and 27.561		Χ	

AIRWORTHINESS REQUIREMENTS COMPLIANCE PROGRAM

Airworthiness						
Requirement	S	Subject for Compliance or Documentary Proof	Form of Substantiation	DOT	DAR	Comments
Paragraph	Amd					
			Aurabasia		V	
27.303	30	Factor of Safety	Analysis		X X	
27.305	30	Strength and Deformation	Analysis and Test iaw AC 43.13-1A		X	
27.307	30	Proof of Structure	Analysis and Test iaw AC 43.13-1A		X	Critical load factor in downward direction.
27.337(a)	30	Limit Maneuvering Load Factor – Positive	Analysis and Test iaw AC 43.13-1A Analysis and Test iaw AC 43.13-1A	Χ	^	Landing gear loads on fitting to be assessed by
27.471	30	Ground Loads - General	to determine equivalent strength to	^		comparison with ultimate strength of original
			existing fitting			Type Approved fitting, and test as required.
07.470	20	Ground Loading Conditions and	N/A			No change to assumptions used for Type
27.473	30	Assumptions	14/7			Approved configuration
27.501	30	Ground Loading Conditions – Landing	Statement in Report	X		Loads from the cargo basket on the landing
27.501	30	Gear with Skids	otatement in report	^		gear fittings do not use skid tubes or cross
		Geal Willi Skius				tubes in load path.
27.547	30	Main Rotor Structure	Flight Test	Χ		See comments for flight test above
27.561	30	Emergency Landing Conditions	Analysis and Test iaw AC 43.13-1A		X	ÿ
27.561(b)3(i)	24	Emergency Landing Conditions – Up	Analysis and Test iaw AC 43.13-1A		X	
27.561(b)3(ii)	24	Emergency Landing Conditions – Fwd	N/A			Forward deflection or failure of basket poses
		3 , 3				no threat to occupants.
27.561(b)3(iii)	24	Emergency Landing Conditions – Side	Analysis and Test iaw AC 43.13-1A		X	
27.561(b)3(iv)	24	Emergency Landing Conditions – Down	Compliance with 27.337		Χ	27.337 Maneuvering Load is Critical.
O descrit D . I	. !	and Construction				
Subpart D – L	Jesigi	and Construction				
27.601	30	Design	Drawings		Χ	Design is conventional.
27.603	30	Materials	Drawings		Χ	Materials used are specified in Mil-Hdbk-5H.
27.605	30	Fabrication Methods	Drawings		Χ	Design is conventional.
27.609	30	Protection of Structure	Drawings		Χ	
27.611	30	Inspection Provisions	Drawings		Х	Design is easy to inspect.
27.613	30	Material Strength Properties and Design	Values used as per Mil-Hdbk-5H		Х	
		Values				
27.625	30	Fitting Factor	Analysis		Χ.	D (TODO E
	742		21/2		ļ	Ref. TCDS Equivalent Safety Finding. Landing
27.725	30	Limit Drop Test	N/A			gear loads on fitting to be assessed by
27.727	30	Reserve Energy Absorption Drop Test	N/A			comparison with ultimate strength of original Type Approved fitting, and test as required.
07.700	0.0	Dears	NI/A			Installation does not block doors.
27.783	30	Doors	N/A Compliance with 23.301 through 307		Х	matanation does not block doors.
27.787(a)	30 30	Cargo and Baggage Compartments Cargo and Baggage Compartments	Design		X	Basket is a closed container.
27.787(b)	30	Cargo and Baggage Compartments	N/A		^	Cargo is external to helicopter.
27.787(c), (d)	30	Cargo and baggage Companinents	TWA			cargo to external to homooptor.

AIRWORTHINESS REQUIREMENTS COMPLIANCE PROGRAM

Airworthiness Requirement	9	Subject for Compliance or Documentary Proof	Form of Substantiation	DOT	DAR	Comments
Paragraph	Amd	t.				
27.807	30	Emergency Exits	N/A		Х	Installation does not block doors.
27.865(a)	30	External Load Attaching Means	Compliance with 27.337		Х	
27.865(b), (c) 27.865(d)	30 30	External Load Attaching Means External Load Attaching Means	N/A N/A			Failure of an attachment does not endanger the rotorcraft.
27.1387 27.1401	30 30	Position Light System Dihedral Angles Anticollision Light System	N/A Statement	Х		No change from Type Approval. Light located at FS 396, WL 130 on vertical fin. Basket has no significant effect on visibility of anticollision light.
Subpart G – 0	Opera	ting Limitations and Information				
27.1505	30	Never Exceed Speed	Flight Test, Flight Manual Supplement	Χ		V _{NE} limits as specified in the existing Flight Manual (140 kts.)
27.1525 27.1529	30 30	Kinds of Operation Instructions for Continuing Airworthiness	Flight Manual Supplement ICA Provided	X		Limited to VFR only.
27.1557(a)	30	Miscellaneous Markings and Placards – Baggage Compartments	Placard		Χ	
27.1557(b) 27.1557(c) 27.1557(d)	30 30 30		N/A N/A N/A			
27.1581 27.1583(c)	30 30	Rotorcraft Flight Manual – General Operating Limitations – Weight and Loading Information	Flight Manual Supplement Flight Manual Supplement	X X		
27.1585	30	Operating Procedures	Flight Manual Supplement	X		
27.1587 27.1589	30 30	Performance Information Loading Information	Flight Manual Supplement Flight Manual Supplement & Placard	X		Placard installed on basket lid
Airworthines	s Mar	nual Requirements				
527.1581(e)		Rotorcraft Flight Manual – Units	SI and Imperial Units provided in Flight Manual Supplement	Х		

Title: Quick Release Cargo Basket Installation

Approval: STC

Manufacture: Mfd by Aero Design (amend Approved Producuct List)

Customer: AERO Design Ltd.

Type and Model: Bell 260L Series, 407

Definition Of Change:

Description:

There have been numerous requests from operators to allow the use of quick-release pins (pip-pins) on the Aero Design cargo basket. The attachments from the beam to the basket are not correct for the intended use of pip-pins, which require double shear and no bending to prevent the pin from coming out.

As an alternative to allowing the use of pip-pins, the mounting beams and basket attachments have been re-designed. The new configuration of the beams consists of a hook attachment securing the top of the basket and a keyway securing a fitting near the bottom. The keyway is blocked by a spring loaded pin that must be pushed in to install or remove the basket. Since there are no tools required, the basket can be installed or removed by a pilot.

Basket construction remains the same as the original low mounted basket, but the length is increased by about 2" so the front and rear hoops are now aligned with the beams.

Primary Changes to the Aeronautical Product:

Installation of new landing gear fittings, installation of beams, installation of cargo basket

Secondary Changes to the Aeronautical Product (Required as consequence of primary changes):

Other Relevant Modifications to the Aeronautical Product (Which impact on this change):

Substantial Change Evaluation:

The scope of this change is not substantial.

Significant Change Evaluation:

	Refer to AMA 500/16, Appendix A, Tables A.2.1 through A.5.6, as applicable.	
	Yes No No The change is an example on the table of Significant Changes. Yes No The change is close to an example on the table of Significant Changes. Yes No The change is an example on the table of Not-Significant Changes. Yes No The change is close to an example on the table of Not-Significant Changes. Yes No The change is not an example on the tables.	Changes. iges.
	Example found: "A fuselage modification that changes the primary structure, a or operating envelope sufficiently to invalidate certification assumptions."	aerodynamics,
	Service experience with this type of installation has shown that only minor coperating envelope are required. The primary structure is not changed.	hanges to the
Α.	Is the general configuration changed? A change to the general configuration at the product level that is likely to require a new model designation because of the need to distinguish the different product with other product models (eg. performance, interchangeability of major components etc).	Yes ☐ No ⊠
B.	Are the principles of construction changed? A change at the product level to the materials and/or construction methods that affects the overall product's operating characteristics or inherent strength.	Yes ☐ No ⊠
C.	Have the assumptions used for certification been invalidated? Changes to product level assumptions, either design or engineering, associated with product development, compliance demonstration, performance or operating envelope that by themselves are so different, that the original assumptions are invalidated and the existing substantiation cannot be extrapolated to cover the changed product.	Yes ☐ No ⊠

Basis of Certification of the Basic Aeronautical Product:

Bell 206L, L-1, L-3, TCDS H-92:

CAR 6 dated December 20, 1956, Amendments 6-1 thru 6-4, CAR 6.307(b) and 6.637 of Amendment 6-5, Special Conditions dated October 2, 1962, as revised February 8, 1966.

For 206L-3 the basis of certification is the same as above plus FAR 27.1529 at amendment 18.

Bell 206L-4, TCDS H-92:

FAR Part 27 dated 2 October 1964 Amendment 27-1 thru 27-24 with: 27.45, 27.141, 27.1309 at Amdt 27-20; 27.1093, 27.1545 at Amdt 27-8; 27.79, 27.143, 27.173, 27.175, 27.1519, 27.1585, 27.1587 at Amdt 27-1; 27.2, 27.307, 27.337, 27.351, 27.427, 27.501, 27.571, 27.613, 27.629, 27.663, 27.674, 27.685, 27.727, 27.783, 27.807, 27.861, 27.865 at Amdt 27-28; and 27.391, 27.395, 27.397, 27.681, 27.1357, 27.1361, replaced by 6.220, 6.225, 6.323, 6.623, 6.624, 6.625, 6.626 of CAR Part 6 dated 6 December 1956 Amendment 6-1 thru 6-4.

Exceptions to FAR 27 are the deletion of: 27.71, 27.177, 27.399, 27.562, 27.610, 27.954, 27.1195, 27.1322.

Bell 407, TCDS H-92

FAR part 27, dated October 2, 1964 Amendment 27-1 through 27-30; Paragraph 27.561(b)(3) at Amdt 27-24; Section 27.563 at Amdt 27-25; Section 27.785 at Amdt 27-24; Section 27.1093 at amendment 27-8; and Section 27.173 and 27.175 at amendment 27-1.

Exemptions to FAR 27 are the deletion of sections: 27.562, 27.1195, and 27.952(b)(1)

Basis of Certification for the Change to the Aeronautical Product:

Same as the original basis of certification on the Type Certificate Data Sheet.

Under the authority vested in me by the Minister, I have examined the change in type design listed above according to the established procedures and hereby determine that it is not significant pursuant to subsection 511.13(3) or 513.07(3) of the CARS, to the best of my knowledge and belief.

27 April, 2006

Date

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DATE			TITLE					DATE			
RICHATURE OF REGIONAL ENGINEER	11.	SIGNATURE OF REGIONAL ENGINEER						DATE			

AERO DESIGN LTD.

2013 – 39th Ave N. E., Calgary, Alberta, T2E 6R7

aerodesign@telusplanet.net

FAX COVER SHEET

DATE:

May 23, 2006

TIME:

10:38 AM

TO:

Jerry Stock

PHONE:

Transport Canada

FAX:

292-4992

FROM:

J. Clarke

PHONE:

403-250-8027

Aero Design Ltd.

FAX:

403-250-8333

Number of pages including cover sheet:

2

CONFORMITY INSPECTION RECORD RE:

Jerry,

Please find attached the B043 form.

CONFORMITY INSPECTION RECORD

Applicant	Aeronautical Produc	t				Title of Change
AERO DESIGN	Bar 2061/4	o 7	NA	PRAIRIE + 1	PAR THERAL	QUICK RELEASE CARGO
LTD.	Make	Model	Serial No.	PRAIRIE + A Region	1010111010	BASKET - BEAMS
Drawing No.	Applicant's Signature	nspector Date	Signature	C. Inspection Date	•	Findings
6983 i-01	Clase.	May 23/06	Distacti	2006/05/	23	1/1/
69831-02	Gff Clide.	May 23/06	Mistal	h 2006/05/	23 1	1/2
	APPLICAN	T'S ATTESTATION	<u>N</u>			TC INSPECTION
I hereby confirm tha	t the prototype installation	on for the subject			ACCEPTABLE	: ·
MODIFICATION,					UNACCEPTA	BLE
☐ REPAIR,						
☐ TSO/AP-TC ART	ICLE					
is in conformity with and that necessary [Please check (✓) th	the applicable installation ground tests have been the applicable box.]	on drawing(s) liste carried out.	d above			
Additional Information	on:			Rer	marks:	
69831-01 = HSS	BEAM			asse	mll	y war mut
69831-02 = 57.	AINLESS BEAM			pou	rderle	rated as yet
Signature:	Clarke.			Siç	gnature:	WHoch



CONFORMITY INSPECTION ASSOCIATED WITH APPLIANCE TYPE CERTIFICATION OR MODIFICATION/REPAIR APPROVAL PROJECTS

(This Airworthiness Notice supersedes AN No. BO43 Edition 1, dated 24 April 1998.)

Purpose

The purpose of this notice is to explain the responsibilities of an applicant prior to requesting a conformity inspection associated with the prototype evaluation of a supplemental type certificate (STC), a limited supplemental type certificate (L/STC), a repair design certificate (RDC), a TSO and/or an appliance type certificate (AP-TC) installation. This revision is intended to clarify the qualifications for those persons responsible for the conformity inspections.

Background

In several cases, prototype installations have not been performed in accordance with the applicant's installation drawings nor have the necessary ground tests been conducted, where required, prior to seeking a conformity inspection by Transport Canada (TC). This situation may often result in ineffective use of TC resources.

Conformity Requirements (Prototype Installation)

The need for a conformity inspection by Transport Canada on a prototype installation associated with an STC, L/STC, RDC, AP-TC or TSO design approval project will be determined by the regional engineer responsible for the project, and the applicant will be advised accordingly. Where such a requirement has been identified, the prototype installation is to be verified by the applicant or his designated person for conformity with the applicable installation drawings and, where required, ground tests performed to determine functionality. The above functions are to be carried out prior to the applicant requesting the required conformity inspection by TC representatives.

Confirmation

A written confirmation is to be provided to the responsible regional project engineer using the Conformity Inspection Record form appended to this notice, or an equivalent form acceptable to TC. The completed form is to be signed by an appropriately rated Aircraft Maintenance Engineer (AME) or Approved Maintenance Organization (AMO). TC form 24-0045 (Conformity Certificate - Repair or Modification), which is intended to certify the installation of an approved modification or repair, should not be used as a Conformity Inspection Record. The Conformity Inspection Record should be accompanied by details pertaining to the location of the test article, the proposed modification or repair, and a proposed date for accomplishing the conformity inspection by TC Airworthiness Inspectors.

For Minister of Transport

Mansfield

Director, Aircraft Certification

To request a change of address, contact the Civil Aviation Communications Centre (AARA) at Place de Ville, Ottawa, Ontario K1A 0N8, or 1-800-305-2059, or http://www.tc.gc.ca/aviation/pubs/index.htm.



Jeff Clarke

From:

Staal, Jack [STAALJ@tc.gc.ca]

Sent:

Tuesday, May 16, 2006 4:52 PM

To:

jeff@aerodesign.ca; Ted Burgoin (E-mail)

Subject:

RE: Cargo Basket Materials

Attachments: Beams_FARs.pdf

Jeff/Ted,

Ref your word attachment, the last statement alludes to similarity of bridge and helicopter environments.....???

What is HSS material?

It is noted that you do not intend to use analysis for substantiation testing is allowed per 27.305/.307.

Testing is also allowed for material qualification ref .603(a)/.613(e). What specification do you have on the drawing(s)??

What are the tests plans and conformity schedules for these tests?

Ted, per your request, I have tentatively booked a visit for Thursday next week May 25th (driving down, TC vehicle) (Should arrive 10, 10:30 AM). OK?

Regards,

----Original Message-----

From: Jeff Clarke [mailto:jeff@aerodesign.ca]

Sent: Friday, May 12, 2006 10:54 AM

To: Staal, Jack

Subject: Cargo Basket Materials

Jack,

In response to your email from May 5, please find attached our rationale for using HSS material for the beams on our new basket. We do not intend to use analysis for substantiation of the beams.

The materials is 2 x 1, item YL-38-05 on the mill test report.

Let me know if you have any questions.

Jeff Clarke Technologist

AERO Design Ltd.

Tube Dimensions

$$h := 2 \cdot in$$

Moment of Inertia

$$I_{yy} := \frac{1}{12} \cdot \left[\left(h \cdot b^3 \right) - \left(h - 2 \cdot t \right) \cdot \left(b - 2 \cdot t \right)^3 \right]$$

$$I_{xx} = 0.105 \cdot in^4$$

$$I_{XX} := \frac{1}{12} \cdot \left[\left(b \cdot h^3 \right) - \left(b - 2 \cdot t \right) \cdot \left(h - 2 \cdot t \right)^3 \right]$$

$$I_{xx} = 0.332 \cdot in^4$$
 0.260 -

Loads

Maneuvering load

$$w_{basket} = 200.17 \cdot kg \cdot m \cdot sec^{-2}$$

$$w_{cargo} = 889.645 \cdot kg \cdot m \cdot sec^{-2}$$
 7

$$n_{man} := 3.5$$

$$n_{sf} := 1.5$$

Assume 2/3 of the cargo weight is taken by the aft beam (critical geometry)

$$p_{lim} := n_{man} \cdot \left(\frac{2}{3} \cdot w_{cargo} + w_{beam} + \frac{1}{2} \cdot w_{basket}\right)$$

$$p_{lim} = 580.417 \cdot lbf$$

$$p_{ult} := p_{lim} \cdot n_{sf}$$

Drag

$$V_{ne} = 140 \cdot kts$$

$$V_d := \frac{V_{ne}}{0.9}$$

$$\rho := 0.00238 \cdot \frac{slug}{ft^3}$$

$$A := 16 \cdot in \cdot 23 \cdot in$$

$$A = 2.556 \cdot ft^2$$

ok

$$D := c \frac{1}{d} \cdot A \cdot \frac{1}{2} \cdot \rho \cdot V_d^2$$

$$D = 334.951 \cdot lbf$$

$$D_{ult} := D \cdot 1.5$$

$$D_{ult} = 502.426 \cdot lbf$$

377.1 in 2 = 2.62 ft 2

Bending Moments and Stresses

Maneuvering Load Factor

$$1_{arm} := 28.25 \cdot in$$

Moment arm (centre basket to I/g ftg)

$$M_{lim} := p_{lim} \cdot l_{arm}$$

$$M_{ult} := p_{ult} \cdot l_{arm}$$

$$M_{lim} = 1.64 \cdot 10^4$$
 ·lbf·in

$$M_{ult} = 2.46 \cdot 10^4$$
 ·lbf·in

$$f_{lim} := \frac{M_{lim} \cdot \frac{1}{2} \cdot h}{I_{xx}}$$

$$f_{ult} := \frac{M_{ult} \cdot \frac{1}{2} \cdot h}{I_{xx}}$$

$$f_{lim} = 4.943 \cdot 10^4$$
 •psi

$$f_{ult} = 7.415 \cdot 10^4$$
 •psi

Drag

Drag load is split equally between forward and aft support beams

$$I_{drag arm} = 17.25 \cdot in$$

$$M_{drag_lim} := \frac{D}{2} \cdot I_{drag_arm}$$

$$M_{drag lim} = 2.889 \cdot 10^3 \cdot lbf \cdot in$$

$$f_{drag_lim} := \frac{M_{drag_lim} \cdot \frac{1}{2} \cdot b}{I_{yy}}$$

$$f_{drag lim} = 1.374 \cdot 10^4$$
 •psi

$$M_{drag_ult} := \frac{D_{ult}}{2} \cdot I_{drag_arm}$$

$$M_{drag_ult} = 4.333 \cdot 10^3$$
 ·lbf·in

$$f_{drag_ult} := \frac{M_{drag_ult} \cdot \frac{1}{2} \cdot b}{I_{yy}}$$

$$f_{drag\ ult} = 2.061 \cdot 10^4$$
 •psi

Allowable Stresses

$$F_{ty} := 400 \cdot MPa$$

$$F_{ty} = 58.015 \cdot ksi$$

$MPa := 10^6 \cdot Pa$

ksi =
$$10^3 \cdot psi$$

Interaction Formula

Limit Condition

$$R_{drag} := \frac{f_{drag_lim}}{F_{ty}}$$

$$R_{drag} = 0.237$$

$$R_{man} := \frac{f_{lim}}{F_{tv}}$$

$$R_{man} = 0.852$$

Ultimate Condition

$$R_{drag_ult} := \frac{f_{drag_ult}}{F_{tu}}$$

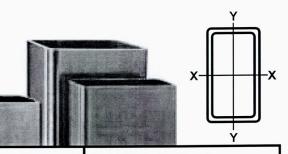
$$R_{drag_ult} = 0.273$$

$$R_{man_ult} := \frac{f_{ult}}{F_{tu}}$$

$$R_{man_ult} = 0.983$$



DIMENSIONS AND SECTION PROPERTIES OF *RECTANGULAR* HSS



	Nominal S	Size	Weight per	Wall Thickness			Cross Sectional			Axis				Axis		Torsional Stiffness Constant	Torsional Shear Constant	Surface Area
		•	Foot	t	b/t	h/t	Area in. ²	I _x	S _x	r _x in.	Z _x	I _y in.4	S _y in. ³	r _y in.	Z _y in. ³	J in. ⁴	C in. ³	Per Foot ft. ²
3 1/2	in. × 2 1/2	in. × 3/8 5/16 1/4 3/16 1/8	12.17 10.58 8.81 6.87 4.75	0.349 0.291 0.233 0.174 0.116	4.2 5.6 7.7 11.4 18.6	7.0 9.0 12.0 17.1 27.2	3.39 2.94 2.44 1.89 1.30	4.74 4.34 3.79 3.09 2.23	2.71 2.48 2.17 1.76 1.28	1.18 1.22 1.25 1.28 1.31	3.59 3.20 2.74 2.18 1.54	2.75 2.53 2.23 1.82 1.33	2.20 2.03 1.78 1.46 1.06	0.902 0.929 0.956 0.983 1.01	2.82 2.52 2.16 1.72 1.22	6.16 5.53 4.75 3.78 2.67	4.57 4.03 3.40 2.67 1.87	0.90 0.92 0.93 0.95 0.97
3	x 2 1/2		9.51 7.96 6.23 4.33	0.291 0.233 0.174 0.116	5.6 7.7 11.4 18.6	7.3 9.9 14.2 22.9	2.64 2.21 1.71 1.19	2.91 2.57 2.11 1.54	1.94 1.71 1.41 1.03	1.05 1.08 1.11 1.14	2.51 2.16 1.73 1.23	2.17 1.93 1.59 1.16	1.74 1.54 1.27 0.930	0.907 0.935 0.962 0.990	2.20 1.90 1.52 1.09	4.34 3.74 3.00 2.13	3.39 2.87 2.27 1.59	0.83 0.85 0.87 0.88
3	x 2	x 5/16 1/4 3/16 1/8	8.45 7.11 5.59 3.90	0.291 0.233 0.174 0.116	3.9 5.6 8.5 14.2	7.3 9.9 14.2 22.9	2.35 1.97 1.54 1.07	2.38 2.12 1.76 1.30	1.58 1.42 1.18 0.866	1.00 1.04 1.07 1.10	2.11 1.83 1.48 1.06	1.23 1.11 0.931 0.692	1.23 1.11 0.931 0.692	0.724 0.750 0.777 0.804	1.58 1.38 1.12 0.803	2.87 2.52 2.05 1.47	2.60 2.23 1.78 1.25	0.75 0.77 0.78 0.80
3	x 1 1/2	x 1/4 3/16 1/8	6.26 4.96 3.48	0.233 0.174 0.116	3.4 5.6 9.9	9.9 14.2 22.9	1.74 1.37 0.96	1.68 1.42 1.06	1.12 0.945 0.706	0.982 1.02 1.05	1.51 1.24 0.895	0.541 0.466 0.355	0.722 0.621 0.474	0.558 0.584 0.610	0.911 0.752 0.550	1.44 1.21 0.886	1.58 1.28 0.920	0.68 0.70 0.72
3	x 1	x 3/16 1/8	6.32 3.05	0.174 0.116	2.7 5.6	14.2 22.9	1.19 0.84	1.07 0.817	0.713 0.545	0.947 0.987	0.989 0.728	0.172 0.138	0.344 0.275	0.380 0.405	0.432 0.325	0.526 0.408	0.792 0.585	0.62 0.63
2 1/2	2 x 1 1/2	x 1/4 3/16 1/8	5.41 4.32 3.05	0.233 0.174 0.116	3.4 5.6 9.9	7.7 11.4 18.6	1.51 1.19 0.84	1.03 0.881 0.668	0.820 0.705 0.535	0.825 0.859 0.892	1.11 0.915 0.671	0.447 0.389 0.299	0.596 0.519 0.399	0.544 0.571 0.597	0.764 0.636 0.469	1.10 0.929 0.687	1.29 1.05 0.759	0.60 0.62 0.63
2	x 1 1/2	x 3/16 1/8	3.68 2.63	0.174 0.116	5.6 9.9	8.5 14.2	1.02 0.72	0.494 0.383	0.494 0.383	0.697 0.727	0.639 0.475	0.312 0.244	0.416 0.325	0.553 0.580	0.521 0.389	0.664 0.496	0.822 0.599	0.53 0.55
2	x 1	× 3/16 → 1/8	3.04 2.20	0.174 0.116	2.7 5.6	8.5 14.2	0.84 0.61	0.349 0.280		0.643 0.679	0.480 0.366	0.112 0.092	0.223 0.184	0.364 0.389	0.288 0.223	0.301 0.238	0.505 0.380	0.45 0.47

Quick Release Cargo Basket Beams

Compliance with FAR 27.603 and 27.613

FAR 27.603 – Materials

The suitability and durability of materials used for parts, the failure of which could adversely affect safety, must--

(a) Be established on the basis of experience or tests;

(b) Meet approved specifications that ensure their having the strength and other properties assumed in the design data; and

(c) Take into account the effects of environmental conditions, such as temperature and humidity, expected in service.

AC27-1B, Section D, AC27.603 b. - Procedures:

(1) Where possible, materials that meet widely accepted specifications such as AISI, SAE, MIL, or AMS and alloys which have favorable experience or tests should be used. Where company developed materials are used, approved specifications are required to ensure the developed properties are duplicated in each lot of material.

The material we have selected meets the requirements of CSA G40.21 50W (ASTM A500 Gr. C). This is widely used in structural applications such as bridges and other dynamically loaded structures. Favorable experience has been shown with this material.

FAR 27.613 – Material strength properties and design values:

- (a) Material strength properties must be based on enough tests of material meeting specifications to establish design values on a statistical basis.
- (b) Design values must be chosen to minimize the probability of structural failure due to material variability. Except as provided in paragraphs (d) and (e) of this section, compliance with this paragraph must be shown by selecting design values that assure material strength with the following probability--
- (1) Where applied loads are eventually distributed through a single member within an assembly, the failure of which would result in loss of structural integrity of the component, 90 percent probability with 95 percent confidence; and
- (2) For redundant structure, those in which the failure of individual elements would result in applied loads being safely distributed to other load-carrying members, 90 percent probability with 95 percent confidence.
- (c) The strength, detail design, and fabrication of the structure must minimize the probability of disastrous fatigue failure, particularly at points of stress concentration.
- (d) Design values may be those contained in the following publications (available from the Naval Publications and Forms Center, 5301 Tabor Avenue, Philadelphia, Pennsylvania 19120) or other values approved by the Administrator:
- (1) MIL-HDBK-5, "Metallic Materials and Elements for Flight Vehicle Structure".
- (2) MIL-HDBK-17, "Plastics for Flight Vehicles".
- (3) ANC-18, "Design of Wood Aircraft Structures".
- (4) MIL-HDBK-23, "Composite Construction for Flight Vehicles".
- (e) Other design values may be used if a selection of the material is made in which a specimen of each individual item is tested before use and it is determined that the actual strength properties of that particular item will equal or exceed those used in design.

AC27-1B, Section D, AC27.613:

a. Explanation. The rule requires the use of materials that have a known minimum strength value. The structure must not be under-strength and must be designed to minimize fatigue failure.

AC23-19, Section D, AC23.613(e):

Materials delivered according to specifications exceed the guaranteed-minimum-strength called out by drawings 99 times out of 100. Military Handbook Metallic Materials and Elements for Aerospace Vehicle Structures (MIL-HDBK-5), industry, and professional society material specifications intend this result, i.e., with 95 percent confidence that 99 percent of the materials will exceed selected design values. That is, the materials used in the test article (and in production articles) are stronger than the minimum values certificated in the design.

Parts (elements) are manufactured and delivered to nominal sizes within tolerances. This means that they will either deliver minimal performance or more than promised.

The material is provided with mill certification that the minimum tensile strength of CSA G40.21 50W (yield and ultimate) has been achieved.

The material is required to have minimum 350 MPa (50 ksi) yield tensile strength. The current batch of material we have has a mill test report showing the material to be 400 MPa yield tensile strength.

AC27-1B, Section D, AC27.613

(3) Section 27.613(d) requires the selection of materials that will retain design values and properties in the type of service environment and for the length of service time intended for the structure.

Service environment outside of the helicopter not different than a bridge or other outdoor structure.

9/30/99 AC 27-1B

(iv) Require notification of the manufacturer of any unusual wear or deterioration of critical parts and the return of affected parts for investigation when appropriate;

- (3) To the extent needed for control of critical characteristics, procedures and processes for manufacturing critical parts (including test articles) are defined (for example material source, forging procedures, machining operations and sequence, inspection techniques, and acceptance and rejection criteria). Procedures for changing these manufacturing procedures should also be established.
- (4) Any changes to the manufacturing procedures, to the design of a critical part, to the approved operating environment, or to the design loading spectrum are evaluated to establish the effects, if any, on the fatigue evaluation of the part.
- (5) Materials review procedures for critical parts (i.e. procedures for determining the disposition of parts having manufacturing errors or material flaws) are in accordance with paragraphs (3) and (4) above.
- (6) Critical parts are identified as required, and relevant records relating to the identification are maintained such that it is possible to establish the manufacturing history of the individual parts or batches of parts.
- (7) The critical characteristics of critical parts produced in whole or in part by suppliers are maintained.

AC 27.603. § 27.603 (Amendment 27-16) MATERIALS.

- a. <u>Explanation</u>. The rule requires that the suitability and durability of materials, the failure of which could adversely affect safety, must be determined by three-fold considerations:
 - (1) Considerations based on experience or tests.
 - (2) By meeting approved specifications.
- (3) By taking into account environmental conditions such as temperature and humidity.

b. Procedures.

(1) Where possible, materials that meet widely accepted specifications such as AISI, SAE, MIL, or AMS and alloys which have favorable experience or tests should be used. Where company developed materials are used, approved specifications are required to ensure the developed properties are duplicated in each lot of material.

AC 27-1B 9/30/99

(2) Environmental conditions may be taken into account by service experience, coupon testing, full-scale testing, or a combination of testing and experience, MIL-HDBK's -5, -17, and -23 include some environmental effects and contain reference to additional methods of testing for environmental effects.

- (3) Section 27.613 concerns strength properties and design values. (See paragraph AC 27.613.)
- AC 27.605. § 27.605 (Amendment 27-16) FABRICATION METHODS.
- a. <u>Explanation</u>. The basic requirement of this rule is that the methods of fabrication must produce sound structure and produce it consistently.
- (1) A process specification is required for fabrication processes requiring $\underline{\text{close}}$ control.
 - (2) A test program is explicitly required for each new aircraft fabrication method.

b. Procedures.

- (1) The approved specifications required by this rule may either be established government/industry specifications such as MIL, AISI, ASIM, or SAE; or the specifications may be company-developed proprietary specifications. Sufficient data should be provided to the FAA/AUTHORITY aircraft engineering offices to show that the desired features are provided by the process specification. In addition, sufficient process controls, inspections, and tests should be coordinated with FAA/AUTHORITY manufacturing inspection personnel to ensure that continued quality of the process is provided.
- (2) In addition to the examples given by the rule; i.e., gluing, spot welding, and heat treating process, specifications should also be prepared for types of welding other than spot welding, for platings of metals, for protective finishes (other than decorative), for sealing, and for unique fabrication methods such as those used for composite materials.
- (3) The required test programs should consider static strength effects, fatigue strength effects, and environmental effects as appropriate to the processes.

AC 27.607. § 27.607 (Amendment 27-4) FASTENERS.

- a. <u>Explanation</u>. Section 27.607 of Amendment 27-4 requires dual locking removable fasteners in critical locations. A nonfriction locking device is specifically required in any bolt subject to rotation, as stated in the rules.
- b. <u>Procedures</u>. Advisory Circular 20-71 contains information, procedures, and means of complying with § 27.607 of Amendment 27-4.

Federal Aviation Regulation

Sec. 27.613

Part 27 AIRWORTHINESS STANDARDS: NORMAL CATEGORY ROTORCRAFT						
Subpart DDesign and Construction	General					

Sec. 27.613

Material strength properties and design values.

- (a) Material strength properties must be based on enough tests of material meeting specifications to establish design values on a statistical basis.
- [(b) Design values must be chosen to minimize the probability of structural failure due to material variability. Except as provided in paragraphs (d) and (e) of this section, compliance with this paragraph must be shown by selecting design values that assure material strength with the following probability--
- (1) Where applied loads are eventually distributed through a single member within an assembly, the failure of which would result in loss of structural integrity of the component, 90 percent probability with 95 percent confidence; and
- (2) For redundant structure, those in which the failure of individual elements would result in applied loads being safely distributed to other load-carrying members, 90 percent probability with 95 percent confidence.]
- (c) The strength, detail design, and fabrication of the structure must minimize the probability of disastrous fatigue failure, particularly at points of stress concentration.
- [(d) Design values may be those contained in the following publications (available from the Naval Publications and Forms Center, 5301 Tabor Avenue, Philadelphia, Pennsylvania 19120) or other values approved by the Administrator:]
- (1) MIL-HDBK-5, "Metallic Materials and Elements for Flight Vehicle Structure".
- (2) MIL-HDBK-17, "Plastics for Flight Vehicles".
- (3) ANC-18, "Design of Wood Aircraft Structures".
- (4) MIL-HDBK-23, "Composite Construction for Flight Vehicles".
- [(e) Other design values may be used if a selection of the material is made in which a specimen of each individual item is tested before use and it is determined that the actual strength properties of that particular item will equal or exceed those used in design.]

Amdt. 27-26, Eff. 4/5/90

Comments

▼Document History

Notice of Proposed Rulemaking Actions:

Notice of Proposed Rulemaking. Notice No. 88-7; Issued on 03/01/89.

Final Rule Actions:

Final Rule. Docket No. 25570; Issued on 02/12/90.

Federal Aviation Regulation

Sec. 27.603

Part 27 AIRWORTHINESS STANDARDS: NORMAL CATEGORY ROTORCRAFT						
Subpart DDesign and Construction	General					

Sec. 27.603

Materials.

The suitability and durability of materials used for parts, the failure of which could adversely affect safety, must--

- I(a) Be established on the basis of experience or tests;
- (b) Meet approved specifications that ensure their having the strength and other properties assumed in the design data; and
- (c) Take into account the effects of environmental conditions, such as temperature and humidity, expected in service.]

Amdt. 27-16, Eff. 12/1/78

Comments

▼Document History

Notice of Proposed Rulemaking Actions:

Notice of Airworthiness Review Program No. 2; Notice No. <u>75-10</u>; Issued on 02/27/75. Notice of Airworthiness Review Program No. 3; Notice No. <u>75-19</u>; Issued on 05/13/75. Notice of Airworthiness Review Program No. 5; Notice No. 75-23; Issued on 05/19/75. Notice of Airworthiness Review Program No. 7; Notice No. 75-26; Issued on 06/09/75. Notice of Airworthiness Review Program No. 8; Notice No. <u>75-31</u>; Issued on 06/30/75.

Final Rule Actions:

Final Rule. Docket No. 14324, 14606, 14625, 14685, 14779; Issued on 10/20/78.

Jeff Clarke

From: Ted Burgoin [ted@aerodesign.ca]

Sent: Friday, May 05, 2006 3:06 PM

To: jeff@aerodesign.ca

Subject: Fw: 407/206 Basket with Quick Release Attachment

---- Original Message -----

From: Staal, Jack
To: Ted Burgoin

Sent: Friday, May 05, 2006 2:49 PM

Subject: RE: 407/206 Basket with Quick Release Attachment

Hi Ted,

Both AC23-19 and AC25-21 discuss material correction factors related to test articles. I was unable to locate guidance on material correction in AC27 and AC29. As I understand it you have company tested to twice the required ultimate load.... without yield/deformation. It seems you have, perhaps inadvertantly, built in a substantial material correction factor in your tests (good thing). The basis for the minimum guaranteed material values should be looked at for acceptability/compliance to 27.613.

Using analysis requires appropriate approved allowables for the material. A materials allowables program may be in order for an analysis approach unless the supplier is able to show that the "guaranteed minimums" are developed in accord with aeronautical methods complying with 27.613.

You sure you want to use a non aeronautical qualified material??

Hope this helps,

J.H. (Jack) Staal

Aircraft Certification Technologist | Technologue, Certification des aeronefs. Prairie and Northern Region | Region des Prairies et du Nord

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Transport Canada | Transports Canada 1100- 9700, Jasper Avenue | avenue Jasper (RAED) Edmonton, AB T5J 4E6 Government of Canada | Gouvernement du Canada

----Original Message-----

From: Ted Burgoin [mailto:ted@aerodesign.ca]

Sent: Thursday, May 04, 2006 4:35 PM

To: Staal, Jack

Subject: Re: 407/206 Basket with Quick Release Attachment

Beams will stay on the helicopter, would be nice to get them off but can't (to be interpretted as "haven't yet") think of a good way of getting them off that will stand up to time. Given that all this junk goes through

the little fan at the back if it comes off, I'm looking for some substantial attachment that can be used to pull the helicopter out of quick-sand if needed.

Both front and aft beams have the same release, aft beam has the release fitting 3" down from the top of the beam to make the basket level with the fuselage waterlines.

Ted.

---- Original Message -----

From: Staal, Jack
To: Ted Burgoin

Sent: Thursday, May 04, 2006 3:47 PM

Subject: RE: 407/206 Basket with Quick Release Attachment

Thanks Ted,

Looks like a tidy set up/design. Same set up basicly on both beams??

Do the beams "quick release" from the helicopter as well??

Regards,

J.H. (Jack) Staal

Aircraft Certification Technologist | Technologue, Certification des aeronefs.

Prairie and Northern Region | Region des Prairies et du Nord

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Government of Canada | Gouvernement du Canada

----Original Message-----

From: Ted Burgoin [mailto:ted@aerodesign.ca]

Sent: Thursday, May 04, 2006 12:15 PM

To: Staal, Jack

Subject: 407/206 Basket with Quick Release Attachment

Morning Jack:

Just a few pictures of how the basket will attach in the new design as we discussed so that you can think about it.

Ted.